



YARRA CLIMATE EMERGENCY PLAN 2020-2024

ACKNOWLEDGMENT OF COUNTRY

Yarra City Council acknowledges the Wurundjeri Woi Wurrung people as the Traditional Owners and true sovereigns of the land now known as Yarra. We also acknowledge the significant contributions made by other Aboriginal and Torres Strait Islander people to life in Yarra. We pay our respects to Elders from all nations and to their Elders past, present and future.

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Translations

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MAYOR'S FOREWORD

Our first Climate Emergency Plan cements Yarra's commitment to respond to the climate emergency. We're proud to be part of a growing movement — with over 1,400 jurisdictions across 30 countries that have declared a climate emergency —and we know that collective, global effort is needed across all levels of government, businesses and communities to address the climate crisis. We also recognise the interconnectedness of global warming, human health and environmental health.

Right now, as governments are designing plans to stimulate the economy and support people to recover from the COVID-19 pandemic, we have a once in a generation opportunity to 'build back better'. We can use the recovery efforts to lower carbon emissions, create the jobs of the future and support stronger, better connected communities.

This plan sets out our longer term targets and lays out the path ahead over the next four years. Through this plan we make several key commitments. We'll accelerate emission reductions in our operations, with a focus on getting off gas and switching to zero emissions vehicles. We'll support you to take climate action — to cut your carbon footprint and create change in your community. We'll also support you to cope with stresses, such as elevated urban heat and poor air quality, especially those of you who are disproportionately affected by worsening climate impacts.

We're changing the ways we manage our natural and built environments to handle climate-related disruptions. We're partnering with others and advocating for the changes that are urgently needed but are beyond the control of a local government — the magnitude of the climate crisis requires that we all work together. This plan sets out the road map for this collective approach.



EXECUTIVE SUMMARY

Yarra City Council recognises that the climate emergency presents an unprecedented challenge – both globally and locally. Our planet's climate is already too hot, with dangerous heatwaves, droughts, storms and flooding becoming more intense and destructive. Global heating is now considered by the world's leading climate scientists and many others to be a 'climate emergency'.

Transformational change is needed across our society and economy to rapidly reduce carbon emissions and drawdown^a emissions from the atmosphere in order to restore a safe climate. It requires large-scale action across all levels of government, businesses and the community to both cut carbon emissions and adapt to living on a hotter planet.

The major transition ahead needs to occur in a fair and socially equitable way. The most vulnerable people have typically made the least contribution to the problem and often have less capacity to respond and cope with the impacts.

^aThe removal of excess greenhouse gases from the atmosphere with the aim of restoring a safe climate.

'Build back better' — Responding to the climate emergency and recovering from the pandemic

As communities, businesses and governments work on recovering from the COVID-19 pandemic, there's an opportunity to 'build back better' — to act on the climate emergency and create a healthier, more equitable, prosperous society. It's a unique opportunity for all levels of government to work together to stimulate the industries of the future — renewable energy, electrical vehicles, resource recovery solutions, water harvesting, environmentally sustainable housing, healthy ecosystem management, sustainable transport infrastructure and food systems. It's also an opportunity for relocalisation and strengthened community resilience — to lead lives that are less energy and resource intensive; and to support one another to cope with future shocks and stresses in all forms.

It's also an opportunity for relocalisation and strengthened community resilience — to lead lives that are less energy and resource intensive; and to support one another to cope with future shocks and stresses in all forms.

In this Climate Emergency Plan we have committed to actions that we can take as a local government, and we will work with and advocate to other levels of government to deploy policy and economic measures that both enable recovery from the pandemic and respond to the climate crisis.

Yarra Council is 'building back better' to act on the climate crisis and enable recovery from the pandemic through delivering our Climate Emergency Plan. We will:

- 'Get off gas' by transitioning all Council's buildings to be all electric, powered by renewable energy by 2030
- Transition all Council's fleet to electric vehicles powered by renewable energy by 2025
- Speed up the roll out of cycling infrastructure by trialling temporary bike lanes to inform permanent upgrades
- Create climate adapted green spaces by harvesting more stormwater to irrigate our parks
- Introduce zero carbon standards for new commercial and residential developments, working with other government partners to amend the planning scheme
- Enable our community to cut their carbon emissions, lead grassroots projects and collectively push for the urgent climate action we need
- Help residents and businesses take up renewable energy and facilitate solar installations
- Advocate for urgent climate action by other levels of government, including strong renewable energy and carbon emissions reduction targets, along with policy and economic measures that both enable recovery from the pandemic and drive emissions reductions

OVERVIEW OF CLIMATE EMERGENCY PLAN

Objectives

- Achieve zero-net emissions across the entire Yarra community by 2030, and accelerate the removal of excess carbon emissions
- Enable our community to take effective climate action — pushing for urgent change and changing the way we live and work
- Ensure our community is safe, healthy and resilient — especially those most vulnerable to severe climate impacts
- Create a city that continues to adapt to a changing climate and is ecologically healthy for all species
- Collaborate and advocate with others in the climate emergency movement to increase our impact

Strategic Priorities

1. Mobilise and enable our community to respond to the climate emergency
2. Accelerate renewable energy, zero carbon buildings and efficient operations
3. Create a climate adapted city
4. Transition to zero emissions transport
5. Move towards zero waste and conscious consumption

Targets

- By 2024, engage 10,000 people in Yarra to take action on the climate emergency
- By 2024, double the percentage of dwellings in Yarra with solar energy systems from 9% in 2019
- By 2024, achieve a 50% increase in the capacity of commercial solar installations across Yarra
- Before 2030, all Council buildings to be 'all-electric' — powered by 100% renewable energy with no use of gas
- By 2040, increase canopy cover for the whole municipality by 25% from a 17% baseline in 2014
- By 2024, 15% of total water consumption by Council to come from alternative sources
- Through an Integrated Water Management Plan, set additional targets for improved water quality

- Through developing an Integrated Transport Plan set ambitious targets to increase the share of trips by active and public transport and decrease the share by car
- By 2025, all Council's vehicles to be powered by 100% renewable electricity / zero emissions, where practical options are available
- Contribute towards the state government's targets to:
 - Divert 80% of waste from landfill by 2030, with an interim target of 72% reduction by 2025
 - Halve the volume of organic material going to landfill between 2020 and 2030, with an interim target of 20% reduction by 2025

Headline actions

- Deliver a new climate program to enable the community to act on the climate emergency
 - Commit substantial grant funds to stimulate community-driven climate action
 - Upgrade the homes of vulnerable people to be more energy efficient and climate resilient
 - Deliver a new 'Nature in the Neighbourhood' initiative to reconnect people with our natural environment
 - Assist large energy users to switch to renewable energy via Power Purchase Agreements (PPA)
 - Support small businesses and residents to buy renewable energy through retail partnerships / independently reviewing retail options
 - Introduce zero carbon standards for new commercial and residential developments, working with local and state government partners to amend the planning scheme
- Develop a zero carbon developments framework and work with developers to achieve and promote leading practice
 - Seek to waive planning application fees for solar installations and improve guidance to help facilitate installs in heritage areas
 - Transition Council's small sites away from using gas within two years and larger, complex facilities before 2030
 - Accelerate street tree planting guided by Priority Planting Plans
 - Expand stormwater harvesting at Edinburgh Gardens to reduce reliance on drinking water for irrigation and improve water quality
 - Create additional pocket parks in high density areas through reclaiming road space
 - Develop options to implement trials or permanent works to enhance streetscapes through increasing tree plantings and permeable surfaces to mitigate heat, wind exposure and flood risk
- Support the installation of public-use electric vehicle charge points
 - Replace all Council's diesel and petrol powered vehicles with electric vehicles, where practical options are available
 - Use an 'iterative trial' approach to roll out transport projects quickly to inform permanent upgrades
 - Roll out a municipal-wide, four-bin food and organic waste kerbside collection service in 2020
 - Facilitate the development of local recycling solutions and markets for recyclables, working with industry and council partners
 - Phase out single use plastics across Council's operations and further engage the community to reduce plastics



INTRODUCTION

The climate emergency

Our planet's climate is already too hot, with dangerous heatwaves, droughts, storms and flooding becoming more intense and destructive. It is widely understood by the world's leading climate scientists that the unprecedented rate of global heating is destroying ecosystems, raising sea levels and undermining food and water security for many of the world's people.¹ It is not only a problem for the future - impacts are being felt here and now. These impacts will dramatically worsen as global temperatures continue to increase.

An emergency situation is a threat to life, health, property or the environment that has the potential to overwhelm and requires urgent intervention. The current level of planetary heating has reached this emergency condition.² The use of the term 'emergency' signals both the gravity of the climate crisis and the need for urgent interventions that go well beyond business-as-usual.

Global heating is primarily due to burning fossil fuels, such as coal, gas and other fuels that are used to power our buildings and vehicles and create the products and services we consume. Burning fossil fuels releases carbon (or greenhouse gas) emissions into the air, trapping heat in the atmosphere. Clearing vegetation from land and generating waste further worsens the problem.

To date, action to reduce carbon emissions and mitigate the resulting climate impacts has been inadequate. The planet has already warmed by more than 1°C over the last century with 13 of the 14 hottest years on record occurring this century. Global heating of 1.5°C or higher further increases the risks of very long-lasting or irreversible changes – it is not a safe level of warming. The UN Intergovernmental Panel on Climate Change warns that unless global emissions are halved within 10 years and virtually eliminated by 2050, the risk of mass-extinction, ecosystem loss, drought, floods, extreme heat and poverty of hundreds of millions of people is high.³ Furthermore, our collective consumption of natural resources is greatly exceeding the Earth's ecological limits.

The climate emergency will increasingly be an issue of security – both national security as impacts lead to conflict and mass movement of people; and personal security as people become more concerned about their health and livelihoods. Globally, we can expect large numbers of climate refugees forced to leave their homes due to environmental disruption.

Both globally and locally, the climate emergency will disproportionately impact the most vulnerable people in our communities who often have far less capacity to respond and cope with the impacts. The people who are unfairly impacted are typically those living on low incomes, the aged and very young, people who are chronically ill, Indigenous people, people experiencing homelessness, and those from culturally and linguistically diverse backgrounds. There is also likely to be more people experiencing climate-related anxiety and grief due to the ecological losses, immediate stresses or concern about future generations and their ability to live healthy lives.

According to the UN Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. Around 1 million animal and plant species are now threatened with extinction, many within decades, more than ever before in human history.⁴ Global heating is a driver of biodiversity loss and ecosystem destruction, along with land clearing, over-exploitation, pollution and invasive species. Devastation to the natural environment is exacerbated by the inability of many species to adapt at the same pace as the climatic change and the changing risk of pests and disease. Locally, the places that Australians identify with and the wildlife we cherish are suffering because of intensifying climate impacts, including the recent unprecedented bushfires.⁵

Local climate impacts

Climate risk trends will significantly impact our natural environment, ecosystems, agriculture, the built environment, and importantly, the health and wellbeing of our community. In addition to the direct impacts of heat and drought, our community's health will continue to be affected by worsening air quality due to bushfire smoke, changes in the spread of infectious diseases, risks to drinking water quality, and the mental anxiety of living in an increasingly uncertain world. The health impacts associated with bushfires have been acutely felt recently. The federal parliament's Royal Commission into National Natural Disaster Arrangements (commonly referred to as the bushfire royal commission), recently heard from medical experts who estimated around 445 people died as a result of smoke from the 2019/2020 bushfires and over 3,000 people were admitted to hospital for respiratory problems.⁷

A hotter climate is expected to bring more heavy rainfall events, which will increase the potential for infrastructure, waterway and property damage and associated mental and physical health risks. Future rainfall is difficult to predict, however on average rainfall in Melbourne has declined by 100-200mm per year with the 1°C of global heating already experienced. It is likely that as the planet continues to heat and our population grows, Melbourne's water resources will be placed under increased pressure, with greater incidence of drought and water shortages. Ensuring a continuous and secure water supply will be a challenge in the future.

Climate risk trends will significantly impact our natural environment, ecosystems, agriculture, the built environment, and importantly, the health and wellbeing of our community. In addition to the direct impacts of heat and drought, our community's health will continue to be affected by worsening air quality, changes in the spread of infectious diseases, risks to drinking water quality, and the mental anxiety of living in an increasingly uncertain world.

As a highly-urbanised, high to medium density municipality, Yarra experiences elevated urban heat (example in Figure 1.), which will further increase as the planet heats up. People who are most vulnerable during extreme heat (especially if coupled with power outages) are those living in intense urban heat islands, older people, the very young, people who are chronically ill, those experiencing homelessness, socio-economic disadvantage and Indigenous and culturally and linguistically diverse communities.

Climate risks for Melbourne⁸



MORE DAYS OF
EXTREME HEAT



HARSHER
FIRE WEATHER



RISING
SEA
LEVEL



MORE
FREQUENT AND
INTENSE HEAVY
DOWNPOURS

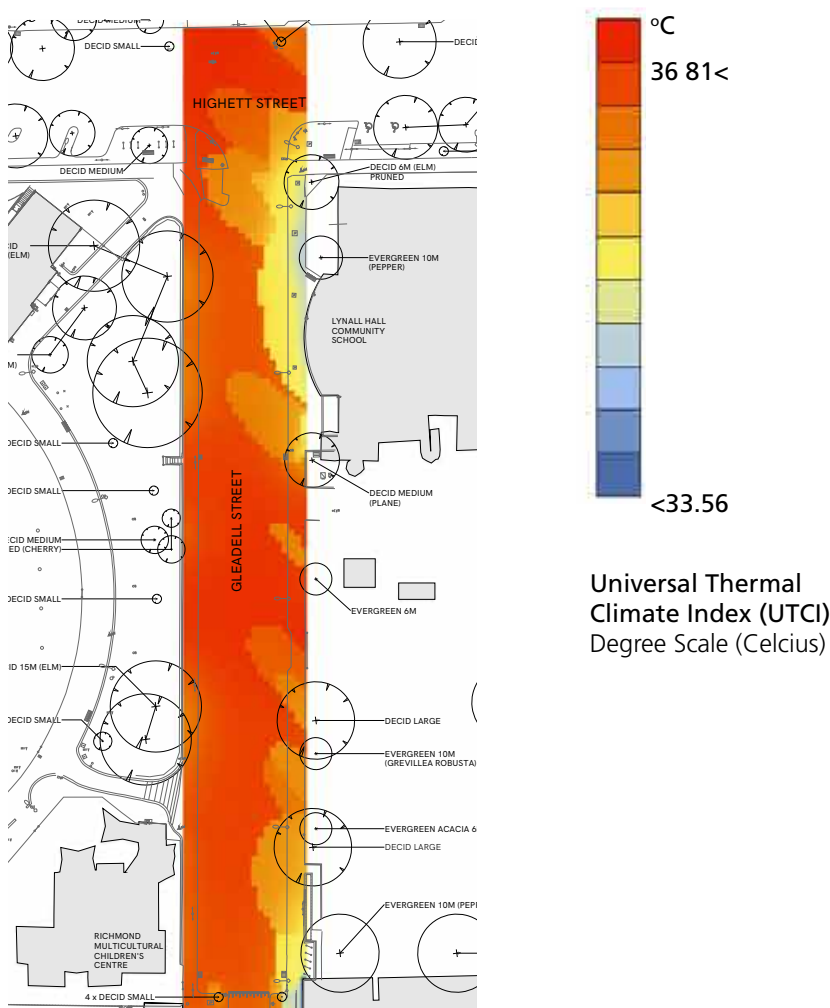


LESS
RAINFALL

People living on low incomes are often concerned about the energy cost of air-conditioning and have less access to cool spaces. This is substantiated by the close correlation between vulnerability and ambulance call-outs in Melbourne on hot summer days. Increased heat will also place pressure on the economy with the expected annual cost to Victoria from heatwave events alone predicted to reach \$179 million by 2030.⁹

The climate emergency has serious consequences for food production and supply in Australia. The food supply chain is highly exposed to disruption from increasingly extreme weather, with farmers already dealing with more frequent and intense droughts, fires and changing weather patterns.¹⁰ In these circumstances crop yields and quality are compromised, and food prices impacted. This has the potential to increase food insecurity for the most vulnerable in our community.

Figure 1. Example of heat mapping applied to inform a potential streetscape redevelopment, Gleadell Street, Richmond

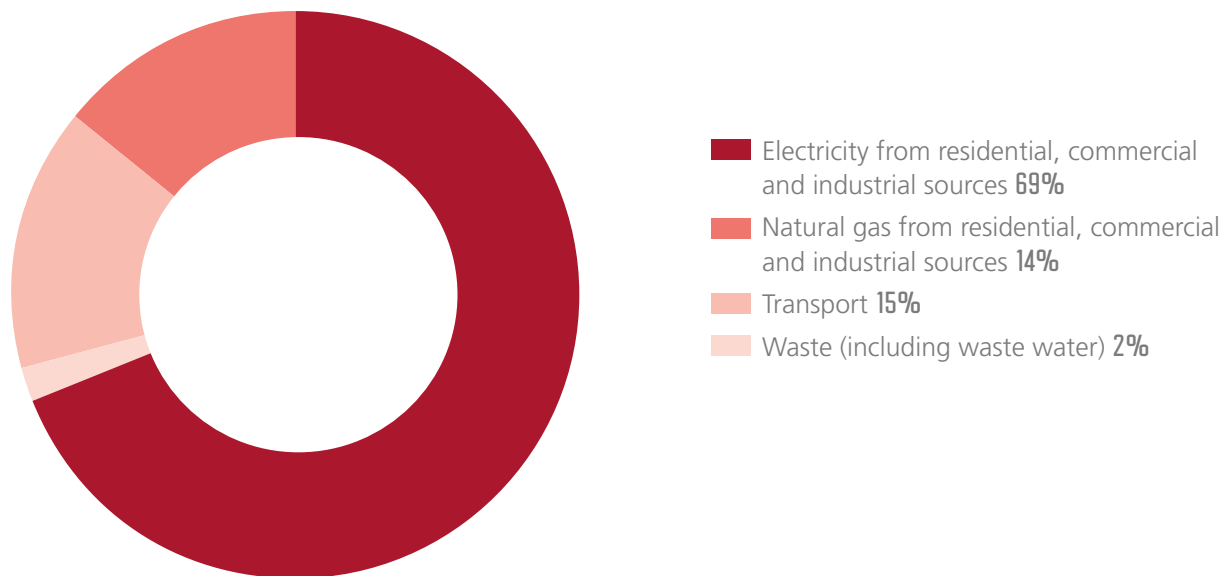


YARRA'S EMISSIONS PROFILE

Emissions from the Yarra community

In 2017/2018 the total annual carbon emissions for the Yarra community was approximately 1,900kt CO₂e. The majority of these emissions (approximately 69%) come from stationary electricity, that is, mostly associated with fossil fuel based electricity used in residential and commercial buildings and industrial processes. The other main source of carbon emissions is gas usage (approximately 14%), transport (approximately 15%) and waste (approximately 2%, including wastewater) (Figure 2).

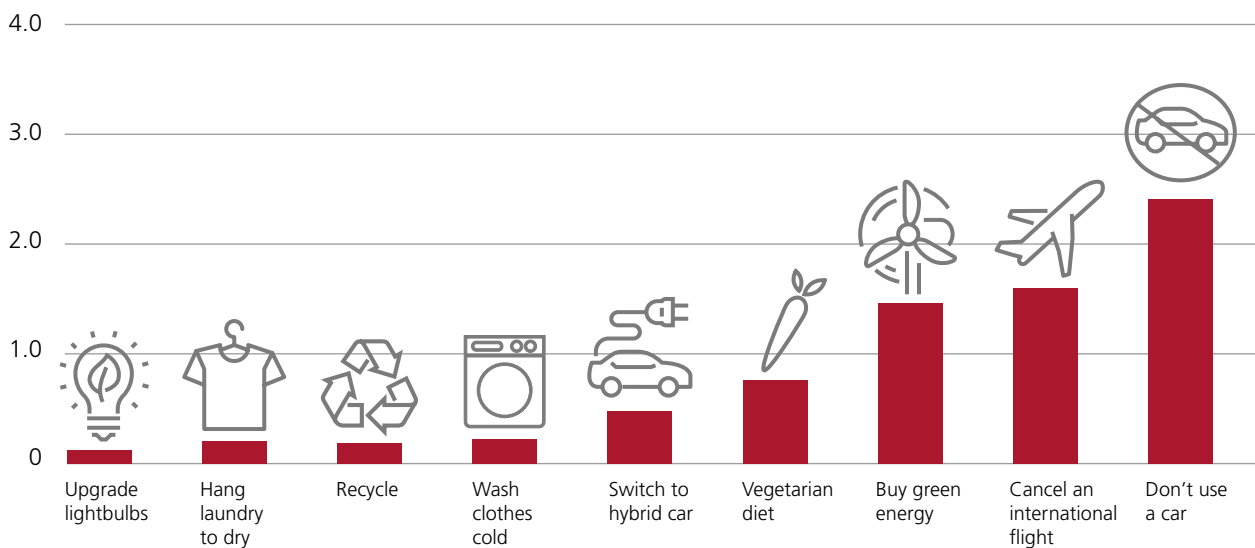
Figure 2. Yarra community carbon emissions profile 2017/18¹¹ (Total emissions 1,900kt CO₂e)



In addition to the emissions above, there are significant embodied emissions produced from goods, services and activities that are not accounted for in the profile. These include emissions produced from extracting or growing raw materials, processing and manufacturing, transport, use and disposal. Air travel and the food we consume — especially meat and dairy — are particularly carbon and resource-intensive and are additional to the emissions presented in Figure 2. While the exact quantity of emissions attributable

to our lifestyles is complex to properly calculate and ascribe, it is widely accepted that the planet cannot sustain this level of consumption, the associated carbon emissions and waste generation. A meta-analysis of a range of individual lifestyle choices in developed countries and their potential to reduce carbon emissions found the greatest opportunities to reduce emissions were through travelling less by car and plane, buying renewable energy and switching to a plant-based diet (Figure 3).

Figure 3. Choices to reduce personal contribution to climate change (annual reduction in carbon emissions, tCO₂e)¹²



Nationally, electricity generation remains the largest contributor of carbon emissions in Australia. As shown in Figure 2, the vast majority of emissions (83%), come from stationary electricity and gas used in commercial, industrial and residential buildings. In order to identify areas of greatest opportunity to reduce emissions, it is useful to analyse which sectors and sub-sectors these emissions come from. Commercial buildings emit the most emissions (61% - Figure 4), mainly due to electricity used for heating, ventilation and air conditioning; lighting; hot water heating and running office equipment.

The growth in commercial office floor space in the past two years has been unprecedented in Yarra and is expected to continue this decade, notwithstanding any unforeseen lasting impacts from the pandemic. Richmond and Cremorne

are major creative and tech hubs — demand for office space in these areas is significantly higher than the rest of Yarra and growing rapidly.

In 2018, there were 15,470 businesses registered in the City of Yarra, an increase of 7.4% since 2016. Businesses employing 1–19 people make up 96% of all registered businesses in the municipality.¹³ While Yarra is overwhelmingly made up of small businesses, our city has been increasingly attracting larger businesses that typically require commercial office spaces. Figure 5 shows the largest portion of commercial sector floor space in Yarra is office space, followed by retail, hospitality and tourism, then other institutional uses, such as education, health, and community use.

Figure 4. Stationary carbon emissions from gas and electricity use by sector¹⁴

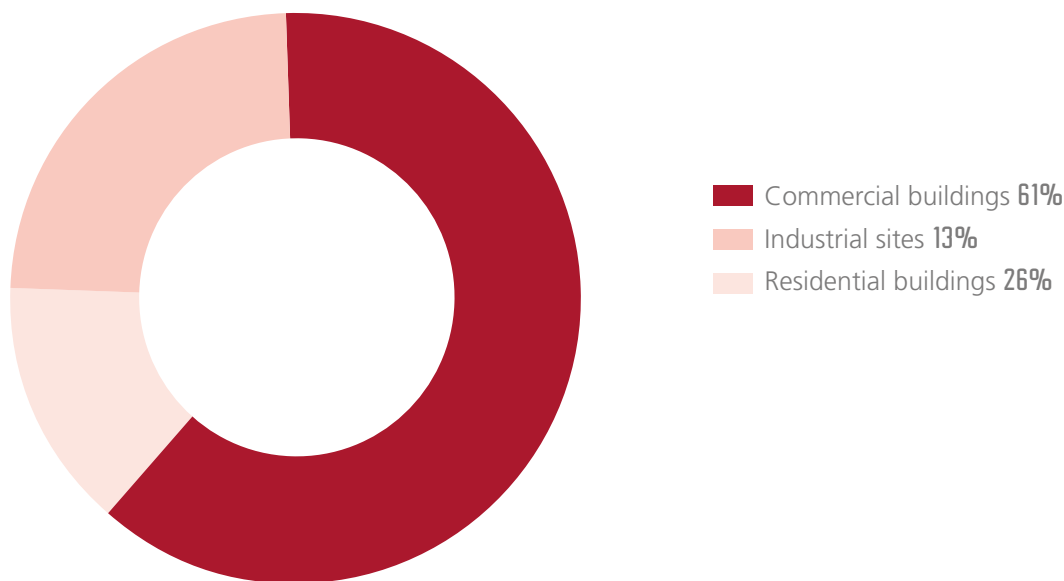
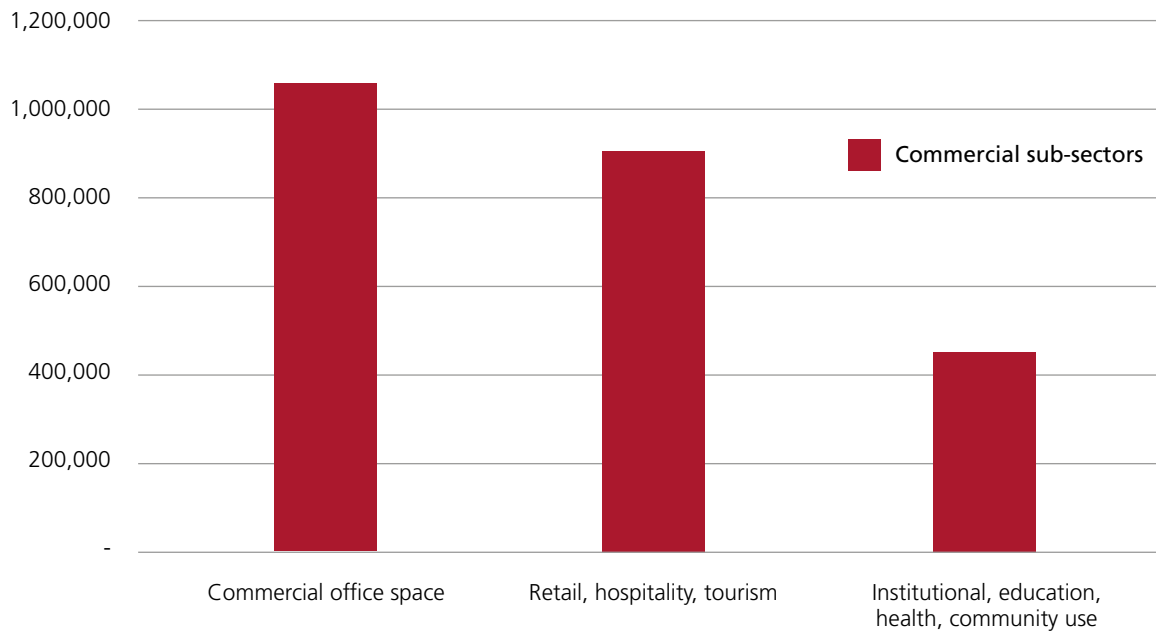


Figure 5. Yarra floor space by commercial sub-sectors¹⁵

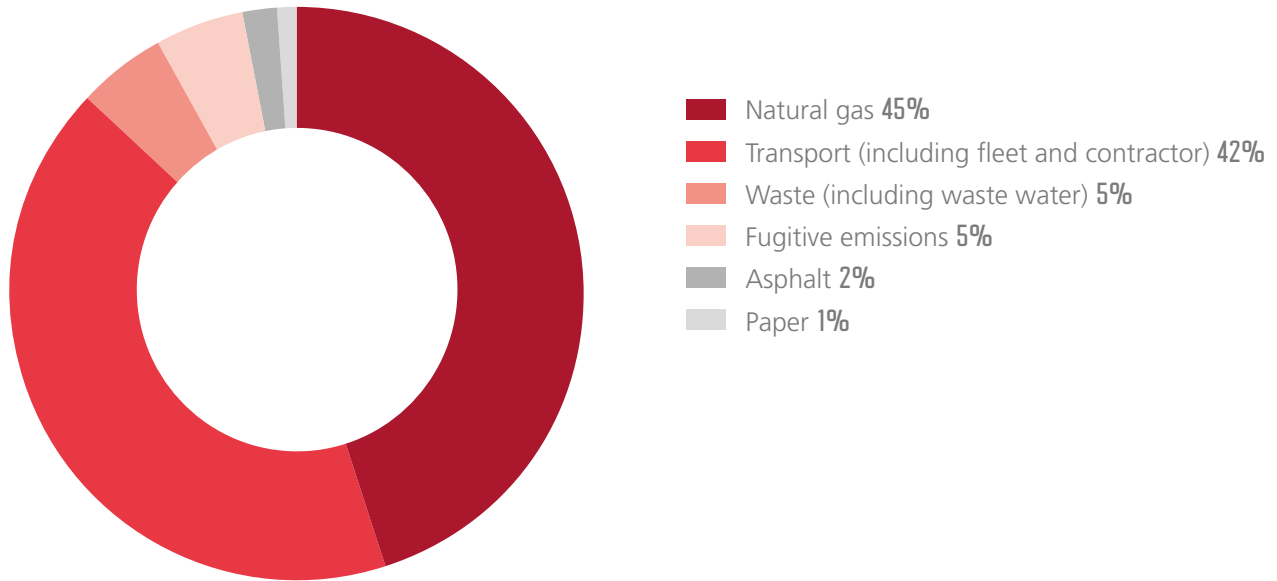


Emissions from Council's operations

Since January 2019, all of Yarra Council's organisational electricity needs have been met by 100% renewable electricity, through rooftop solar generation across 38 council sites, and the remainder from wind power supplied by the Melbourne Renewable Energy Project (MREP). This means the main opportunities to reduce our organisation's emissions are transitioning away

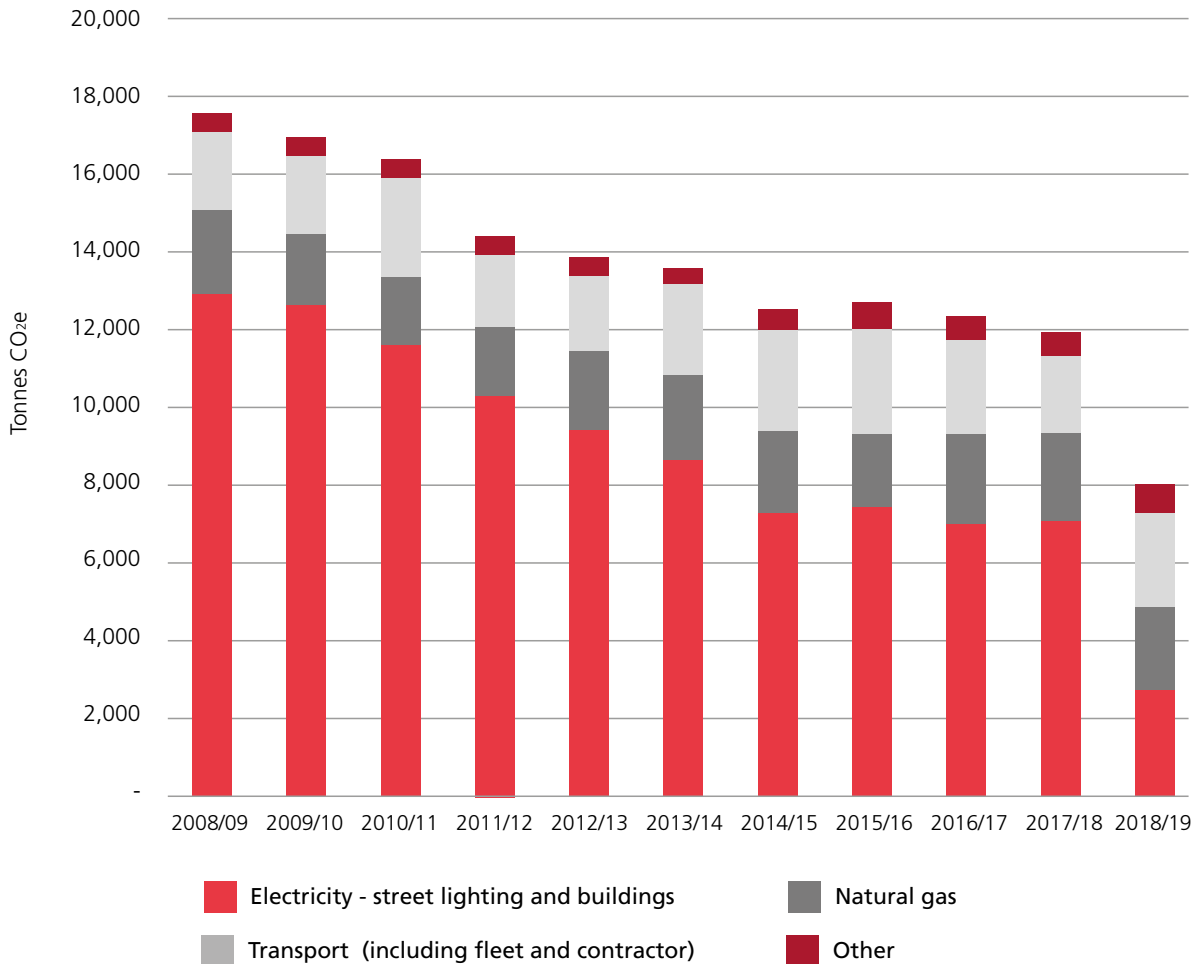
from natural gas (making up around 45 percent of emissions) and reducing emissions from transport (currently around 42 percent) (see Figure 6). Over ten years, the total emissions from Yarra Council as an organisation have reduced substantially from 16,194 tCO₂e in 2008/09 to approximately 4,500 tCO₂e for the 2019 calendar year, with major reductions achieved via street lighting, building upgrades and MREP (Figure 7).

Figure 6. Yarra Council's organisational carbon emissions profile, July 2019 (4,500tCO₂e)¹⁶



THE MAIN OPPORTUNITIES TO REDUCE OUR ORGANISATION'S EMISSIONS ARE A TRANSITION AWAY FROM NATURAL GAS AND FOSSIL-FUEL POWERED VEHICLES

Figure 7. Yarra Council's organisational carbon emissions trend from 2008/09 to 2018/19*



* Council commenced purchasing 100% renewable electricity halfway through 2018/19, hence this includes some emissions from electricity. Slight changes in Council's carbon emissions inventory boundary have occurred over time.

Since 2012 Yarra Council has been operating as a certified carbon neutral organisation (under the National Carbon Offsetting Standard), meaning certified carbon offsets have been purchased to cover the residual emissions, bringing overall emissions to net zero. Yarra Council was just the second local government in Australia to achieve this accreditation.



RESPONDING TO THE CLIMATE EMERGENCY

Yarra Council was one of the first local governments in the world to declare a climate emergency, acknowledging both the scale and urgency of action needed to avoid the catastrophic impacts of global heating.

Effectively responding to the climate emergency requires transformational societal and economic change. Both globally and locally, we must rapidly reduce carbon emissions and drawdown excess emissions from the atmosphere to restore a safe climate. It will require changing our resource intensive, high consuming ways of life, as well as adapting to living on a hotter planet.

YARRA COUNCIL WAS ONE OF THE FIRST LOCAL GOVERNMENTS IN THE WORLD TO DECLARE A CLIMATE EMERGENCY

Across the world, millions of people are calling for urgent and significant action to address the climate emergency. While there may be various interpretations of a 'climate emergency response' depending on context, it can be considered to mean:

- Mobilising the community to take collective action on the climate emergency and advocate for urgent and meaningful change
- Taking action to reduce emissions at a scale and speed commensurate with the magnitude of the climate emergency. It does not mean taking action that is considered business-as-usual or making incremental change
- Climate action being greatly accelerated across our society — by all levels of government, businesses and the wider community
- Acknowledging we are in uncharted territory which requires experimentation and new ways of operating

Responding proportionately to the climate emergency will at times involve uncomfortable change and the need to make hard choices. Relatively affluent countries like Australia have greater capacity to respond, and arguably a moral obligation to take on a considerable share of the work to be done and to assist others to transition.

Both Yarra Council and the Yarra community have a long history of environmental action and advocacy. The community advocated to Council to declare a climate emergency, taking the view that we need stronger policies and programs to reduce carbon emissions and to protect the community, particularly its most vulnerable members, from climate-related impacts.

Drawdown

Carbon (or greenhouse gas) emissions from past human activity continue to have a destructive impact on our planet by trapping heat in the atmosphere and creating climate conditions that are unsafe for humans, other species and ecological systems. In order to restore a safe climate, excess emissions need to be removed (or drawn down) from the atmosphere, such as through storing carbon in soils, vegetation, trees, oceans and via other biological processes.

Many carbon removal techniques are not currently deployable at the scale needed, may be unproven and have other implications for land and natural resource use.¹⁷ There is a need to rapidly reduce emissions while also supporting action that contributes to carbon storage, such as tree planting and vegetation management.

Yarra Council acknowledges that effective drawdown of emissions globally will require large-scale actions, such as the creation of vast carbon sinks and changes in land management practices that are well beyond the direct control of local governments. We will stay up to date with emerging approaches to drawdown and partner with others to advocate for effective and scalable drawdown methods. There may be future opportunities for partnerships with regional councils to jointly invest in regenerative land management practices to sequester carbon and contribute to regional economies.

Yarra Council's roles

Responding effectively to the climate emergency requires a collective effort across all levels of government, businesses and the community, and as a council we have several key roles to play (Figure 8).

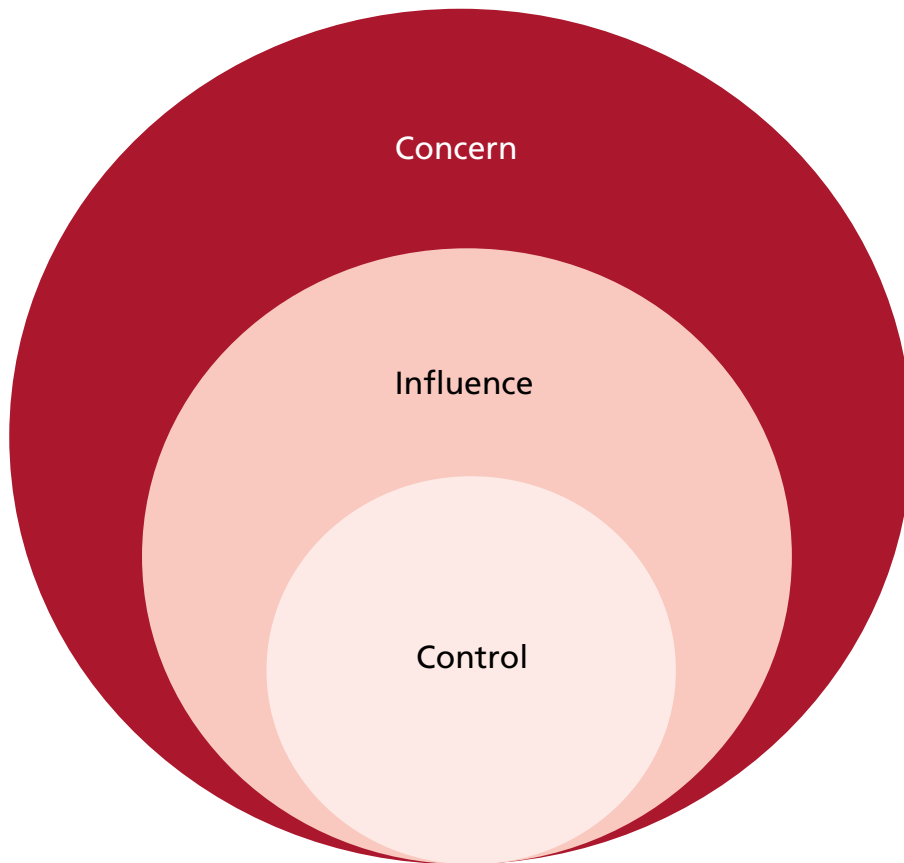
There is a strong role for Council to partner with others — our community, other councils and alliances — to jointly scale up our efforts and collectively push for change. Within our own operations, we will significantly accelerate emission reductions and ensure our infrastructure, assets and community are resilient to climate impacts.

Many of the structural changes and policy reforms needed are outside the direct control of local governments. For example, driving major emission reductions through policy changes to speed up investment in grid-supplied renewable electricity, public transport improvements and raising building standards.

In responding to the climate emergency, Yarra Council plays the following roles:

- Enabling and supporting community-led climate action and advocacy
- Supporting the community to be healthy and resilient in a climate impacted world, including through our emergency management functions
- Partnering with other councils, alliances, other levels of government and organisations such as Yarra Energy Foundation to implement solutions to reduce emissions
- Advocating to state and federal governments to commit to and deliver the transformational changes required to avoid overwhelming climate damage
- Partnering with others — businesses, community and key stakeholders — to recognise the global climate emergency and take action
- Planning, designing and building a city that is adapted to climate impacts
- Embedding climate resilience into all Yarra Council's work and supporting staff to understand the climate emergency and to deliver climate responses as part of their roles
- Operating as a carbon neutral organisation, rapidly reducing carbon emissions from our own operations prior to purchasing carbon offsets

Figure 8. Circles of concern, influence and control



Concern

- Issues that Council has little ability to directly influence or control, for example, international climate commitments, broader societal trends.
- Council can monitor and may respond strategically in priority areas.

Influence

- Matters outside of Council's direct control, such as community carbon emissions and state and federal government policies.
- Council can play various roles to advocate, partner, educate, fund or incentivise change.

Control

- Matters within Council's direct control, for example, emissions from our operations, management of assets and infrastructure, and discharging statutory responsibilities
- Council plays a decision-making role and leads implementation of action.

Yarra Council has strategic partnerships that assist with accelerating climate action. These include:

- **Global Covenant of Mayors for Climate and Energy:** the world's largest global alliance for city climate leadership, with over 10,000 participants promoting and supporting voluntary action to combat the climate emergency and move to a low emissions, resilient society.
- **Northern Alliance for Greenhouse Action (NAGA):** a partnership between nine local governments in Melbourne's north that delivers carbon reduction programs and advocacy across municipal borders.
- **Cities Power Partnership (CPP):** Australia's largest local government climate network, with 115 participants sharing information and building connections in order to accelerate local action.
- **Resilient Melbourne:** a collaboration between inner-Melbourne councils to address the chronic stresses and acute shocks facing our city. Resilient Melbourne is part of the broader Global Resilient Cities Network.
- **Take 2:** A state-government led pledge program working across all sectors towards achieving zero-net emissions for Victoria.

YARRA COUNCIL'S STRATEGIC
PARTNERSHIPS ASSIST WITH
ACCELERATING CLIMATE ACTION

Yarra Energy Foundation

The Yarra Energy Foundation (YEF) is an independent organisation working towards a zero-carbon future in the City of Yarra. Established by Yarra Council in 2010, YEF receives core funding to deliver energy efficiency and renewable energy programs to support households, schools, community groups and businesses to move towards a zero-carbon city.

YEF facilitates solar installations on homes, businesses and community buildings and energy improvements in buildings through advising on products and technologies and changing energy behaviours. YEF can further assist businesses to buy renewable energy and work with apartment owners, tenants and managers to navigate the complexities of installing solar in multi-unit developments.



A SNAPSHOT OF YARRA'S ACHIEVEMENTS



Solar and renewable energy

- All Council's electricity needs met by 100% renewable power via the Melbourne Renewable Energy Project
- 2,920 solar panels (740 kW generation capacity) installed on 38 Council buildings
- 6 'Tesla 2' batteries (100kWh storage capacity) installed in community facilities, including leisure centres, libraries and sports pavilions
- 4,380 streetlights upgraded with efficient lamps saving \$385,000 per year in energy and maintenance costs
- Operating as a certified carbon neutral Council since 2012



Trees

- Canopy cover increased by 4.3% from 2009 to 2016 across the municipality
- Planting between 800 - 1000 trees per year in streets and parks
- 33 bio-retention tree pits irrigate street trees and passively treat stormwater runoff



Sustainable buildings

- Energy efficiency retrofits to Council buildings such as building upgrades, lighting, insulation, solar hot water, efficient heating and cooling, including via an Energy Performance Contract guaranteeing savings of 2,000 tonnes of carbon emissions and \$200,000 each year
- All new and renovated Council buildings include significant sustainability (ESD) features, such as the 6-star Green Star rated library — Bargoonga Nganjin in North Fitzroy
- One of the first Victorian councils to introduce an ESD Local Planning Policy raising environmental performance standards for new private developments



Urban ecology

- 38 hectares of reserves are managed primarily for native vegetation cover
- An average of 15,000 – 20,000 indigenous ground covers, understory and trees are planted annually



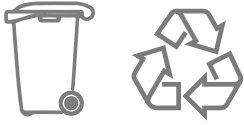
Transport and Yarra's fleet

- Australia's first municipality-wide 40km per hour speed limit on residential streets, with a further 30km per hour speed zone introduced in Collingwood, creating safer conditions for cyclists and pedestrians
- A Copenhagen style separated bike lane on Wellington Street Collingwood, providing safer and better-connected cycling conditions
- Six new accessible tram stops along Route 96, Nicholson St, North Carlton
- Priority crossings for walking and cycling on the Capital City Trail and Linear Park Trail
- Trial of the first electric bike share scheme with City of Melbourne and City of Port Phillip
- First electric tipper trucks in Australia, three electric vans, two sedans, 20 electric bikes and 40 hybrid vehicles
- Ecologically-based bushland management practices at 31 core bushland sites with additional native plant restoration programs at several other mixed-landscape sites
- All reserves with bushland values are mapped and monitored against national standards for ecological restoration



Climate adaptation

- Award winning analytical tools and training to enable staff to consider climate risks and opportunities for new projects and building developments



Waste and resource recovery

- Through Yarra's Waste Revolution, the first Victorian council to trial organics and glass waste source separation and kerbside collection, sending 60% less waste to landfill
- Engaged North Fitzroy businesses and customers through the Proudly Plastic Free campaign to reduce supply of single-use plastics
- Installed new electronic waste recycling hubs across Yarra to make recycling easier
- Launched Yarra's Zero Waste Map a community education tool to enable business and residents to reduce their waste footprint
- 'Closing the loop' through a focus on buying products made from recycled materials



Community

- Established and continue to fund Yarra Energy Foundation to deliver programs supporting households, schools, community groups and businesses to reduce energy and carbon emissions



Green spaces and urban agriculture

- Created six new open spaces since 2009, expanding the open space network in Abbotsford, Collingwood and Richmond
- Increased the size of two existing open space reserves in Fitzroy and Richmond
- 162 planter box community growing spaces supplementing the growing area of private gardens, five public community gardens, six community gardens on public housing sites and a new community garden under development
- Six communal compost hubs enabling residents to recycle food waste and regenerate local soils

- Awarded around \$200,000 worth of sustainability related grants over the last 4 years, plus dozens of small project grants to support community-led sustainability projects
- Engaged over 700 people through climate emergency related events in 2019
- Partnered with Yarra Energy Foundation to facilitate the installation of 90 solar systems in the last year



Water

- 27% reduction in total potable water consumption since 2000
- Major raingarden system at Edinburgh Gardens harvests and reuses stormwater to meet 50% of the park's irrigation needs
- Public raingardens across the city slowing and treating polluted stormwater before discharge to waterways
- 92 litter traps and 5 gross pollution traps preventing litter entering waterways
- 10ML of water use each year is met by alternative sources
- Recognised dozens of local businesses, community groups, schools, children's centres and individual sustainability champions through Yarra's Sustainability Awards
- Delivered 'Keep Cool in Yarra', an award-winning heatwave safety campaign to reduce heatwave vulnerability among people living in social and public housing

YARRA'S CLIMATE EMERGENCY RESPONSE

Focussing on areas of greatest opportunity

Many of the solutions to rapidly reduce carbon emissions are viable and available now – it is often a question of scaling up their implementation. Over the years, considerable robust, evidence-based work has been carried out to identify the areas of greatest opportunity to reduce emissions across the Australian economy, such as by Climate Works and Beyond Zero Emissions. Internationally, the 'Drawdown' project brought together peer-reviewed science on the top 100 impactful climate solutions, highlighting the benefits and costs of each. At the municipal level, we have analysed the emissions profiles of both Yarra Council and the community and identified emission reduction opportunities, along with climate adaptation actions. A review of the work at the national, state and local level has informed the development of this plan to focus on actions with the potential for the greatest impact.

Taking strong action on both climate mitigation and adaptation presents opportunities to realise a range of co-benefits including improved public health, social connectedness, a stronger economy, improved air quality and overall liveability of the city.

Our first Climate Emergency Plan sets longer term objectives for Yarra Council's response to the climate emergency and identifies strategic priorities to focus our work over the next four years.

Objectives

The objectives of our Climate Emergency Plan are to:

- Achieve zero-net emissions across the entire Yarra community by 2030, and accelerate the removal of excess carbon emissions
- Enable our community to take effective climate action — pushing for urgent change and changing the way we live and work
- Ensure our community is safe, healthy and resilient — especially those most vulnerable to severe climate impacts
- Create a city that continues to adapt to a changing climate and is ecologically healthy for all species
- Collaborate and advocate with others in the climate emergency movement to increase our impact

Achieving zero net emissions

Attaining 'zero-net' emissions across the Yarra community requires that the net carbon (or greenhouse gas) emissions from the entire municipality are equal to zero. The first priority is to reduce emissions — mainly from buildings and transport — as quickly as possible in the next ten years, however there will be residential emissions in 2030. At least initially, achieving zero-net emissions is likely to require the use of carbon offsets, through accredited initiatives such as forestation or soil carbon sequestration. It is anticipated that reliance on offsets would be reduced overtime and additional carbon would be drawn down.

Dramatically reducing carbon emissions largely relies on the rapid replacement of gas and coal-fired electricity with grid-supplied renewable energy and a fast transition away from petrol and diesel powered vehicles. We acknowledge that the government policy interventions and structural changes needed to drive this transition are outside of Council's direct control. We have set this ambitious 2030 target recognising that deep and rapid cuts to emissions are needed to prevent the worst impacts of the climate crisis. Partnering with others to advocate to other levels of government for much stronger climate action are a critical part of our climate emergency response.

Strategic priorities

We have set five strategic priorities to focus our climate emergency response:

1. Mobilise and enable our community to respond to the climate emergency

Vision: The Yarra community and Council are taking effective climate action as part of a global climate movement, and are resilient in the face of the climate crisis.

2. Accelerate renewable energy, zero carbon buildings and efficient operations

Vision: Yarra homes, businesses, Council operations and community buildings are of the highest energy standards and powered by renewable energy.

3. Create a climate adapted city

Vision: Yarra's natural and built environments are healthy and resilient in a climate impacted world.

4. Transition to zero emissions transport

Vision: Sustainable transport is the most attractive, safe and convenient way to travel in and through Yarra.

5. Move towards zero waste and conscious consumption

Vision: The Yarra community are conscious consumers who avoid waste, reduce embodied carbon emissions and preserve resources.

The role of the action plans

Organised around the five strategic priorities, the following sections set out targets, headline actions and present actions in tabular action plans. As appropriate, the action plans include resources required for delivery, such as staff and financial resourcing. In many cases the actions fit into future budget cycles, therefore fully costed project proposals and schedules will be prepared at that time and be subject to future budget approval processes..

For many actions, the first year is to be delivered within existing resources or with a modest increase in resources to enable new initiatives to be set up then expanded in subsequent years (for example, the community climate programs). Where expansion of initiatives requires additional resources this has been indicated in the action plan. Some actions are delivered primarily through complementary Council strategies and plans, for example, strategies related to waste, urban agriculture and nature. The relationship between the Climate Emergency Plan and these other strategies is set out in Appendix A.

Implications of the COVID-19 pandemic for the Climate Emergency Plan

As a society we are currently experiencing two concurrent crises — the COVID-19 pandemic and the climate emergency. The impacts of the pandemic in early 2020 have been felt strongly and swiftly, necessitating a response within days across governments and communities. The climate crisis will continue to unfold over years as a combination of acute shocks and chronic stresses.

During the COVID-19 pandemic many in our community are experiencing shocks in the form of economic downturn and unemployment, social isolation and food supply disruptions. While the shocks of the climate crisis may take different forms — more heatwaves, intense storms and flooding, leading to power, water and food supply disruptions and price rises — many of the support structures and interventions needed by governments and others to help communities bounce back from such disruptions are similar.

Communities that are most resilient to shocks — that is, most able to anticipate, cope with and recover — often share common characteristics. They typically have strong social networks and support that people can call on; they collectively hold a lot of knowledge and capability in the community; they have many people with a healthy mental outlook and coping abilities; and they offer security — providing adequate housing, personal safety, financial security and economic investment. These 'protective factors' typically apply in a crisis regardless of the source of the shocks, whether it be a pandemic, climate-related or other disruption. For example, it is the same networks and relationships between people and organisations who live and operate in the community that will enable the community to recover and function effectively.

The pandemic recovery phase presents an opportunity to take action on the climate emergency and achieve multiple community benefits — to build more resilient communities and improve people’s health, quality of life and economic prosperity. It’s an opportunity for governments to deploy policy and economic measures that both enable recovery from the pandemic and drive emissions reductions (e.g. through stimulating the renewables industry, investing in sustainable transport and creating low carbon business opportunities). It’s also an opportunity for relocalisation - to lead lives that are less energy and resource intensive and wasteful; to be more connected to one another and create healthy environments.

Yarra Council, like many other businesses and organisations, faces pandemic-related budget constraints in the short to medium term. There are however several actions in the plan that will progress within existing resources, such as pivoting existing resources towards community climate action; working towards zero carbon standards for new developments; joint advocacy efforts and feasibility and/or design stages of capital works projects. As financial resources become available and budgets are revisited, we will further implement actions in the plan.

We will work with and advocate to other levels of government to deploy policy and economic measures that both enable recovery from the pandemic and respond to the climate crisis. We will also develop projects to be ready to roll out should external funding become available through COVID-19 recovery efforts.

Timeframes, monitoring and review

This plan sets out actions to be delivered over the next four years. We will publicly report on key actions via Council’s annual corporate reporting and will communicate achievements through a range of communications channels, such as Yarra’s website, Yarra News, digital media, case studies and other forms of recognition to promote and amplify the Yarra community’s climate action efforts. The actions within the plan will be reviewed and updated after two years.

Council will continue to annually monitor, analyse and report on organisational carbon emissions, including maintaining carbon neutral certification. Emissions from the community will be monitored as electricity and gas data becomes available.

Levels of engagement through our community climate programs will be monitored and evaluated via a range of means including participation, action taken and measures of community driven projects. During the first year of the plan, we will review how we best deliver community programs to scale up and drive rapid emission reductions in the decade ahead. This review will include looking at suitable governance arrangements, potential delivery models/partnerships and future funding requirements.

There is considerable uncertainty about how the climate crisis will continue to unfold, but it is unlikely to progress in an orderly manner and is expected to be highly disruptive. We will take an adaptive approach to implementation, responding to new opportunities and changes over the life of the plan.

In the lead up to expiration of this plan, Council will develop an evidence-based ‘roadmap to zero’, analysing the emissions reduction potential and cost effectiveness of possible actions. This process will engage key stakeholders and the community and shape the way forward to drive further emission reductions.



STRATEGIC PRIORITY 1: MOBILISE AND ENABLE THE COMMUNITY

Vision: The Yarra community and Council are taking effective climate action as part of a global climate movement, and are resilient in the face of the climate crisis.

The sheer scale and complexity of the climate emergency challenge requires that we work together — the actions of individuals, particular institutions or sectors cannot solve it alone.

Yarra Council has a significant role to play in bringing people together and enabling them to be active citizens creating change. Through our expanded community climate programs we will partner with and support a range of sectors within the community — residents, businesses, community groups, organisations, neighbourhood houses and young people — to take climate action in several different ways.

Advocating for change

As the tier of government closest to the community, Council is well placed to partner with others in the community to jointly push for other levels of governments to respond to the climate emergency at the scale and speed the crisis requires. To amplify our impact, Council will connect people with existing groups, campaigns and provide training and support to help people advocate effectively. Additionally, we will continue working with other councils and alliances to influence state and federal governments.

Changing behaviours

While the scale of transformation needed goes well beyond people making individual lifestyle changes, there is a need for everyone to cut their carbon emissions. Along with Yarra Energy Foundation, we will deliver a range of programs, campaigns and events providing practical assistance to reduce carbon emissions and environmental impacts, including encouraging electric bicycles and vehicles, buying renewable energy, embracing plant-based diets and divesting from fossil fuels.

A new 'Nature in the Neighbourhood' program will aim to connect more people with our natural environment, increasing appreciation of our urban biodiversity and ecosystems, and enabling people to take a more active role in ecological restoration. Council will also continue to deliver complementary waste and urban agriculture educational programs.

Supporting community-led climate action

The Yarra community has many highly active individuals, networks and groups leading grassroots environmental activity. Council can play a stronger role in connecting people and supporting and promoting the action they're taking. There are also many successful projects led by organisations that could be expanded in Yarra. By dedicating a substantial pool of community grant funds, Council can enable existing community groups and organisations to scale up their efforts.

Fostering community resilience

Climate-related safety concerns in the community can be a result of chronic stresses (e.g. rising energy and food prices) and acute shocks or emergencies (e.g. power, water and food supply disruption). Typically people in communities that have strong social connections and collective capability are more resilient — better able to anticipate, cope with and recover from stresses and shocks in all forms.

Increasing resilience in part involves strengthening and better connecting the systems and structures that enable the community to function well. As a council, we already play a strong role in this area through our on-ground delivery of community services; our work with other community service partners and coordination of emergency management functions, such as communicating public health messages, assisting our community to be more prepared for extreme conditions and operating emergency relief centres during times of crisis.

As we experience more extreme climate impacts and other disruptions, including heatwaves, intense storms and flooding, transport disruptions and power outages there will be a growing need for community members to support each other, particularly those more vulnerable to impacts and with less capacity to respond. Council will work further with key sectors like community organisations, emergency agencies, businesses and governments to build more resilience in our communities.

Climate events series

Throughout 2019, we engaged over 700 people through climate emergency related events:

- Climate emergency forum, focused on climate science and health impacts
- How to stay engaged to act during a climate emergency
- Taking to children about the climate crisis
- Several solar and battery information sessions, jointly with YEF
- Student Climate Justice Training Climate and Student Climate Leadership program
- Citizen science urban heat monitoring



A new climate action program

Council's new program aims to mobilise people to take climate action in our city over the next four years. 'Climate action' can take many forms — from becoming part of the collective movement applying pressure on governments to step up their climate policies; to making lifestyle changes to cut individual and household carbon emissions; and helping people in the community prepare for and cope with worsening climate related impacts. The program will be delivered around six key areas:

- **Community connectors** – work across sectors – engaging at least 200 influential and well-connected people per year to lead climate action within their communities
- **Community and council advocacy** – partner with advocacy groups and organisations to deliver workshops to help people advocate effectively to governments for meaningful climate action
- **Climate communications and behaviour change** – events and campaigns to assist people to make practical changes to cut carbon emissions (for example, electric bicycles and vehicles, divesting from fossil fuels, plant-based diets, '100% Renewable Yarra' campaign in partnership with YEF)
- **Climate conversations** – increase people's knowledge of the climate crisis through enabling more climate conversations throughout the city
- **Grants for climate action** – new climate action stream of Council's annual grants to enable community-led climate action
- **Showcase community climate action** – through open days, tours, case studies and other recognition

In addition, Council will work in a targeted way with Yarra businesses to assist them to buy renewable energy; and build the capacity of community service providers to prepare for and respond to climate related disruptions.

Through these various program elements we aim to engage 10,000 people in Yarra to take action on the climate emergency by 2024.





Target

- By 2024, engage 10,000 people in Yarra to take action on the climate emergency

Headline actions

- Deliver a new climate program to enable the community to act on the climate emergency
- Commit substantial grant funds to stimulate community-driven climate action
- Upgrade the homes of vulnerable people to be more energy efficient and climate resilient
- Deliver a new 'Nature in the Neighbourhood' initiative to reconnect people with our natural environment

1. Mobilise and enable the community to respond to the climate emergency

No.	Action description	Resourcing ^b	Who
Community mobilisation and capacity building			
1.1	<p>Deliver community programs to accelerate climate action including:</p> <ul style="list-style-type: none"> • A 'community connectors' program to enable at least 200 people each year from across the community to take climate action in their communities • Workshops to increase people's knowledge of the climate crisis and provide skills for effective climate advocacy and action • Educational events and campaigns with practical ways to help people change behaviours to reduce carbon emissions • Developing a '100% Renewable Yarra' campaign in partnership with YEF • Showcasing community climate action through open days, tours and other recognition • Working across sectors to support and partner with organisations, community groups and neighbourhood houses taking climate action 	<p>Commence program within existing resources, with further resourcing to be subject to future budget processes.</p> <p>Indicative future funding: at least \$100,000 per year with additional resources required for an expanded '100% Renewable Yarra' campaign.</p>	<p>Lead: Sustainability</p> <p>Support: Communications</p> <p>Partners: Climate and environment groups, Other community organisations, Yarra Energy Foundation</p>

^b Note that draft resourcing throughout the action plans have been revised in light of budget constraints due to the COVID-19 pandemic.

1. Mobilise and enable the community to respond to the climate emergency

No.	Action description	Resourcing ^b	Who
Support vulnerable communities			
1.2	<p>Support the most vulnerable in our community to prepare and cope with extreme climate impacts, including heatwaves, storms, floods, transport disruptions and power outages through:</p> <ul style="list-style-type: none"> • Targeted communications and in-home support to older people, those who are unwell, have additional needs or are living in housing with poor environmental performance • Adapting heatwave and other climate risk messages promoted to the community • Build the capacity of community organisations to prepare for and respond to climate related impacts (for example, community service organisations, outreach workers, emergency response agencies, places of refuge, such as neighbourhood houses, libraries and leisure centres) • Adapting Council's emergency preparedness and response procedures and reviewing resourcing needs as climate impacts worsen • Assisting older and vulnerable people to upgrade their homes to improve energy efficiency and thermal comfort, through draft proofing, insulation and efficient lighting (Refer action 2.1) 	<p>Through existing relationships and within existing resources.</p>	<p>Partners: Sustainability, Aged and Disability Services, Health, Safety and Risk, Community Development, Municipal Emergency Management Planning partners, State government agencies, Neighbourhood Houses Local community groups</p>

1. Mobilise and enable the community to respond to the climate emergency

No.	Action description	Resourcing	Who
Fund community-led climate action			
1.3	<p>Dedicate a substantial pool of community grant funds to accelerate community-led climate action, with emphasis on projects that:</p> <ul style="list-style-type: none"> • Mobilise the community to take climate action, including advocating for change • Support the most vulnerable in our community to cope with climate impacts (for example, extreme weather, energy and food insecurity) • Build stronger social connections to increase resilience to future shocks and stresses • Present replicable models to reduce carbon emissions; support local food systems; care for local natural environments; avoid waste and enable more conscious consumption; and foster sustainable transport behaviours in the community 	<p>Commence within existing community grants budget, with further resourcing to be subject to future budget processes.</p> <p>Indicative future funding: at least \$100,000 per year. Future years' resourcing to build on foundational first year.</p>	<p>Partners: Sustainability, Community Development, Local environment groups, Not-For-Profit and other community organisations</p>
Nature in the Neighbourhood			
1.4	<p>Deliver a new 'Nature in the Neighbourhood' initiative focusing on:</p> <ul style="list-style-type: none"> • Reconnecting people with our natural environment, to gain an appreciation of urban biodiversity and understand our interdependence with ecological systems • Engaging the community as stewards of our environment, providing hands-on experiences for people to connect with nature and take a more active role in ecological restoration • Improving ecological connectivity, creating cool spaces and habitat by skilling up the community to plant more vegetation on private land 	<p>To be delivered via Yarra's Draft Nature Strategy (under development).</p>	<p>Lead: Biodiversity</p> <p>Support: Sustainability, Communications</p>

1. Mobilise and enable the community to respond to the climate emergency

No.	Action description	Resourcing	Who
Divestment			
1.5	<p>Continue to implement and update Yarra Council's divestment activities, including:</p> <ul style="list-style-type: none"> Utilising Council's Ethical Procurement and Investment Commitment to actively screen Council's investments to ensure divestment of funds away from banks and other institutions that invest in fossil fuel industries Educating the community and staff about options to divest from fossil fuels through superannuation, banking and other investments 	Within existing resources.	<p>Partners: Finance, Sustainability</p>
Advocacy and partnerships			
1.6	<p>Advocate to other levels of government for stronger climate action by:</p> <ul style="list-style-type: none"> Collaborating with others to advocate to state and federal governments to declare a climate emergency and take strong action commensurate with the scale and urgency of the emergency Advocating for policy reform on key issues including renewable energy, buildings, waste and transport Advocating for a just transition to a low carbon future with assistance for those most vulnerable to rising energy costs, such as people living on low incomes and in housing with poor energy performance 	Within existing resources.	<p>Lead: Advocacy and Engagement, Sustainability</p> <p>Partners: Northern Alliance for Greenhouse Action (NAGA), Other local governments</p>
1.7	<p>Support growth of the climate emergency movement by:</p> <ul style="list-style-type: none"> Collaborating and sharing learnings with others to encourage more councils, organisations and businesses to declare and respond to the climate emergency Working with councils and other organisations that have declared a climate emergency to grow the movement and take collective action 	Within existing resources.	<p>Lead: Sustainability</p> <p>Support: Advocacy and Engagement</p> <p>Partners: NAGA, Other local governments</p>



STRATEGIC PRIORITY 2. ACCELERATE RENEWABLE ENERGY, ZERO CARBON BUILDINGS AND EFFICIENT OPERATIONS

Vision: Yarra homes, businesses, Council operations and community buildings are of the highest energy standards and powered by renewable energy.

Achieving zero-net carbon emissions across the entire municipality largely depends on how rapidly we can shift away from relying on fossil-fuel sourced electricity to power our buildings. Electricity use in buildings is the largest source of carbon emissions in the municipality (69%), compared to gas (14%) and transport (15%) (Figure 2 – ‘Yarra’s emissions profile’ section).

Commercial sector opportunities

Focussing on electricity use in commercial buildings presents the greatest opportunity for emission reductions, as this sector is the source of 61% of Yarra’s carbon emissions from stationary energy use (Figure 4). This sector is largely made up of commercial office buildings; retail and hospitality; health, education, community facilities (Figure 5), with commercial office floor space being the fastest growing portion, particularly in Richmond and Cremorne.

In general, emissions from buildings can be reduced in several ways — by using less energy, generating electricity through solar installations, buying 100% renewable electricity and shifting away from using gas. In the commercial sector, there remain considerable energy saving opportunities with strong financial returns, including upgrades to commercial lighting, plant, equipment and appliances, and optimising building energy management. There is also potential for additional commercial solar installations — currently there are 118 commercial solar systems in Yarra with a capacity of 4,541kW.

Notwithstanding these opportunities, there are considerable barriers that limit uptake of commercial solar, including that businesses are mostly tenants in the premises, limited available roof space and impediments to grid connections. In Yarra, the vast majority (more than 90%) of commercial premises are leased and 96% of businesses are small to medium enterprises. In this context there is likely to be greater opportunity to rapidly reduce emissions from electricity through:

- Using our experience with the Melbourne Renewable Energy Project to assist large energy using businesses in Yarra to purchase renewable energy via Power Purchase Agreements (PPA); and
- Partnering with Yarra Energy Foundation to explore renewable electricity partnerships with energy retailers and/or independently reviewing retail options to assist small businesses and residents to buy renewable energy.

Residential sector opportunities

Around a quarter of Yarra's emissions (26%) come from electricity and gas usage in residential homes (Figure 4). Based on the latest data (2019), around 9% of freestanding and semi-detached dwellings in Yarra have solar energy systems. 6,568kW of our city's installed capacity is made up of systems less than 10kW in size.¹⁸

The amount of solar installed is comparable to other inner-city municipalities with similar constraints, including a high portion of medium density, multi-unit housing and rental properties. Even though there has been solid growth in installations in Yarra over ten years, there is still substantial potential to install additional solar, with considerable roof space not yet utilised. Analysis by YEF¹⁹ found there to be more than 4,300 separate, single storey dwellings that are owner occupied and likely to have good potential for solar installation, out of approximately 23,400 freestanding and semi-detached dwellings in Yarra.

Although there is potential for much more rooftop solar, even if all viable roof space in Yarra was optimised we would only meet around 20% of our city's electricity needs. Furthermore, there are considerable portions of our community 'locked-out' from installing solar because they rent (50.3%), live in an apartment (46%) or may own a home with roof space but are living on a low income, such as an aged or disability pension.

Opportunities in existing apartment buildings

There is growing interest in solar installations on apartment buildings, with YEF having facilitated a small number of installs to supply energy to common areas, such as lifts, gyms and walkways. There are however, considerable hurdles for solar energy on apartments due to significant upfront costs, such as additional equipment and metering; strata management and owners' corporation governance structures; regulatory and network constraints; limited roof space and a large portion of apartments being rental properties.

As with the commercial sector, reducing carbon emissions in residential buildings warrants focussing on assisting residents — whether they rent, live in apartments or own their homes — to purchase renewable energy.

Assisting vulnerable households

Those most vulnerable to heatwaves and rising energy costs are often the least able to afford the cost increases to install solar or buy renewable electricity. Council and YEF can play a stronger role through helping upgrade the homes of vulnerable residents, including older people and people on low incomes.

Opportunities in new buildings

While emissions reductions can be made by sourcing renewable energy and upgrading existing housing stock, there is also a pressing need to raise the environmental performance standards of new buildings. Yarra was one of the first councils in Victoria to introduce higher environmental standards for new buildings through a joint planning scheme amendment introducing a local Environmentally Sustainable Development (ESD)

planning policy. This was a several year process with other councils, the state planning department and required approval from the state planning minister. To further raise the standards, we will partner with other councils to build a strong evidence-base for zero carbon building standards and work towards a group planning scheme amendment.

Reducing emissions in Council's operations

Since 2019, Council's entire electricity needs have been met by 100% renewable power, and as a result, gas usage now represents the highest portion (45%) of our organisation's carbon emissions (Figure 6). Council's focus is to transition our buildings from gas to electricity as soon as practicable. In leading the way to transitioning to 'all-electric' operations, we will share the technologies and know-how with local businesses and other organisations to assist their transition. We will also continue a strong focus on energy performance to reduce costs through public lighting upgrades and optimising building performance with new technologies and approaches.

Advocating for a fast transition

A fast transition to zero-net emissions relies heavily on grid-supplied electricity being sourced from renewables rather than coal and gas fired power stations. To accelerate this transition, Council will continue advocating for more ambitious renewable energy targets and stronger national policies. Other advocacy priorities include regulating the minimum energy efficiency performance of rental properties and addressing the barriers to installing solar on multi-unit developments.

Council's environmentally sustainable buildings

Bargoonga Nganjin, Yarra's library and community hub in North Fitzroy achieved a six-star Green Star rating — at the time the highest environmental rating awarded by the Green Building Council of Australia. The building's environmentally sustainable design features include:

- Solar panels on the roof providing 12.5 kilowatts of power
- Design and materials choice to enhance thermal performance
- Facades providing west facing shade
- Rainwater storage for reuse throughout the building
- Communal roof top garden with edible plants, an automatic irrigation system with moisture sensors
- Energy efficient fixtures and fittings
- Recycled materials and natural finishes



Melbourne Renewable Energy Project

Yarra is a partner in the Melbourne Renewable Energy Project (MREP) which has resulted in Council sourcing 100% of its electricity from renewable energy via a long-term Power Purchase Agreement (PPA).

With significant energy efficiency works and on-site solar installations already implemented, the next step to reduce our emissions was to

explore purchasing renewable energy for the remainder of our electricity needs.

In an Australian first, this project brought together the purchasing power of 14 partners, including universities, cultural institutions, corporations and councils to drive the construction of a new wind farm near Ararat.

We will build on the success of MREP buy using our experience to assist large energy using businesses to procure renewable electricity via Power Purchase Agreements.





Targets

- By 2024, double the percentage of dwellings in Yarra with solar energy systems from 9% in 2019²⁰
- By 2024, achieve a 50% increase in the capacity of commercial solar installations across Yarra, from current commercial capacity of 4,541kW
- Before 2030, all Council buildings to be 'all-electric' — powered by 100% renewable energy with no use of gas

Headline actions

- Assist large energy users to switch to renewable energy via Power Purchase Agreements (PPA)
- Support small businesses and residents to buy renewable energy through retail partnerships / independently reviewing retail options
- Introduce zero carbon standards for new commercial and residential developments, working with local and state government partners to amend the planning scheme
- Develop a zero carbon developments framework and work with developers to achieve and promote leading practice
- Seek to waive planning application fees for solar installations and improve guidance to help facilitate installs in heritage areas
- Transition Council's small sites away from using gas within two years and larger, more complex facilities before 2030

Zero carbon developments

The buildings of the future could not only greatly reduce energy use, but generate and drive demand for renewable energy. Zero carbon developments are new buildings that have no net carbon emissions, typically achieved by being highly energy efficient and not using fossil fuels in their operation through a combination of rooftop solar and buying off-site renewable energy.

Through research into zero carbon standards and working with leaders in the development industry, Council can facilitate more zero carbon developments in Yarra. Internationally, zero carbon standards in the built environment generally have a consistent set of features:

- high standard of energy performance achieved for example through a focus on passive design, building orientation, improved air tightness and insulation, high performance glazing, windows, lighting, cooling and heating and hot water systems

-
- maximising on-site renewable energy generation, usually through by solar energy systems
 - choosing materials in line with passive design strategies and with low embodied energy
 - long term off-site renewable energy purchasing, such as through Power Purchase Agreements
 - various legal and contractual arrangements to ensure the standard is maintained over the life of the building.

We will drive further leadership in the development industry by promoting examples of zero carbon buildings, and work towards a planning scheme amendment to raise standards across the sector.

2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Residents			
2.1	<p>Accelerate residential solar installs and the reduction of carbon emissions via tailored programs:</p> <p>Homeowners: Providing expert energy advice and facilitating affordable, quality solar and battery installations and home upgrades, including heating and cooling, insulation, lighting, draught proofing and moving off gas.</p> <p>Vulnerable households: Partnering with aged and community care providers to upgrade the homes of the most vulnerable community members each year. Customised energy retrofits may include insulation, lighting, draft proofing, door and window seals, fans and blinds, to improve thermal comfort, reduce bill stress and improve health outcomes.</p> <p>Tenants and landlords: Providing information about solar rebates, energy saving and facilitating low-cost energy retrofits, including draft proofing and lighting changes. Assisting renters to engage property owners and managers around more significant energy improvements.</p> <p>Multi-unit developments: Supporting apartment owners, property managers and tenants to work through the complexities of installing solar and upgrading buildings to improve energy performance.</p> <p>Low-income housing: Exploring options to assist low-income households to buy renewable energy and/or cover the upfront cost of solar system installs with repayments to be made via Council's rates mechanism. Explore partnerships with community housing providers.</p> <p>Offer ongoing support through:</p> <ul style="list-style-type: none"> • Online tools to help people prioritise actions to reduce carbon emissions • Seeking external funding opportunities to support additional households with energy-efficiency retrofits and solar installs, particularly low income and vulnerable households • Staying abreast of emerging technologies and trends, such as micro-grids and virtual networks, as well as partnership and funding opportunities to reduce emissions 	<p>Largely to be delivered by Council's existing contribution to Yarra Energy Foundation.</p> <p>Indicative budget: Post pandemic-phase, an additional \$30,000 per year for upgrading homes of vulnerable people. Up to 60 homes to be upgraded in first year, increasing over time.</p>	<p>Lead: Yarra Energy Foundation</p> <p>Support: Sustainability</p> <p>Partners: Aged and Disability and other related service providers, Community service organisations, Social and public housing providers, including Office of Housing, Funding agencies such as state government</p>

2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Residents			
2.2	<p>Reduce the complexity for residents seeking to buy ethical, affordable, renewable electricity by:</p> <ul style="list-style-type: none"> • Developing a '100% Renewable Yarra' campaign • Exploring partnerships with retailers and/or independently reviewing renewable electricity retail options • Stay abreast of emerging community energy models, such as solar gardens, or other approaches for the community to invest in renewables and enjoy greater energy independence 	<p>Establish renewable energy offer within existing resources. An expanded campaign would require additional resources.</p>	<p>Lead: Yarra Energy Foundation</p> <p>Support: Sustainability</p>
Businesses			
2.3	<p>Support Yarra businesses to transition to 100% renewable electricity and more efficient operations through:</p> <ul style="list-style-type: none"> • Facilitating solar and battery installations and building upgrades, including accessing Environmental Upgrade Finance or other financial incentives • Supporting businesses to increase the uptake of energy audits, and high efficiency technologies and management processes • Supporting large energy using businesses to purchase renewable electricity including the potential for group Power Purchasing Agreements (PPA) • For small to medium businesses (and residents), explore partnerships with energy retailers and/or independently review and advise on renewable electricity retail options • Including businesses in the '100% Renewable Yarra' campaign to promote and educate businesses about renewable electricity options • Promoting sustainable businesses in Yarra who are taking strong action, such as purchasing 100% renewable electricity 	<p>Commence program within existing resources, with further resourcing to be subject to future budget processes.</p> <p>Indicative future funding: additional staff resource plus at least \$30,000 per year.</p>	<p>Lead: Sustainability, Yarra Energy Foundation</p> <p>Support: Economic Development</p>

2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Community organisations			
2.4	<p>Support Yarra community organisations to transition to 100% renewable electricity and upgrade their buildings through:</p> <ul style="list-style-type: none"> • Facilitating solar installations and the upgrade of buildings used by community groups, including assisting with access to financial support, such as government grants • Supporting access to 100% renewable electricity in the most cost-effective way via: <ul style="list-style-type: none"> - enabling community organisations operating in Yarra Council buildings to purchase renewable energy as part of our long-term renewable electricity contract - supporting other organisations to understand and access options to buy renewable energy including via the '100% Renewable Yarra' campaign 	Existing resources.	<p>Lead: Yarra Energy Foundation</p> <p>Support: Sustainability</p>
Yarra Council buildings			
2.5	<p>Ensure all new Yarra Council buildings are zero-net emissions in construction and operation by:</p> <ul style="list-style-type: none"> • Setting strong design standards in an updated ESD (Environmentally Sustainable Design) Buildings Policy to ensure new Council buildings demonstrate environmental sustainability and climate resilience principles throughout design, construction and operation • Eliminating the use of gas, maximising solar energy generation and battery storage, and powering buildings with 100% renewable energy • Incorporating natural cooling and insulation such as green walls, roofs and landscaping • Utilising partnerships and trialling new and emerging technologies 	Additional projects subject to annual capital budget processes.	<p>Lead: Sustainability, Building and Asset Management</p>

2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Yarra Council buildings			
2.6	<p>Ensure all existing Yarra Council buildings are highly efficient and zero emissions by:</p> <ul style="list-style-type: none"> • Progressively transitioning facilities off gas, focusing on: <ul style="list-style-type: none"> - All sites with relatively simple gas systems (i.e. hot water systems and domestic-type heating) being transitioned off gas by the end of 2022 (30 of 38 sites) - Sites with highly complex, building integrated gas systems (i.e. leisure centres and town halls) to be off gas by 2030 where feasible • Ensuring all Council buildings' roof space is maximised with solar panels by the of end 2022, including: <ul style="list-style-type: none"> - Provision for solar capacity beyond site electricity usage (where roof space allows) to feed additional renewable electricity into the grid - Use of integrated battery storage where daytime electricity usage is low - Investigating the use of micro-grids or other innovative technologies - Provision of solar panels on community-used Council facilities • Implementing best-practice energy efficiency and building optimisation by: <ul style="list-style-type: none"> - Utilising smart control and monitoring technologies to operate buildings at the highest possible energy and building performance standards - Identifying and investing in priority building energy efficiency upgrades, and ensure energy efficiency outcomes are factored into all building project works 	<p>Actions are subject to budget processes. Indicative allocations would be: First stage of capital works: \$855,000. (\$355,000 for going off gas and \$500,000 for building upgrades)</p> <p>Second stage of capital works: \$320,000 for solar</p>	<p>Lead: Sustainability</p> <p>Support: Building and Asset Management</p>

2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Public lighting			
2.7	<p>Accelerate the transition of Yarra's public lighting to the most energy efficient technology and management techniques by:</p> <ul style="list-style-type: none"> • Upgrading all main road lights to smart LED • Upgrading all main road lights shared with the Department of Transport • Reviewing residential streetlights to upgrade from T5 to LED when appropriate, based on emerging technology and management practices • Reviewing and upgrading other public lighting (for example, parks, sports fields), as appropriate 	<p>Budget to be confirmed in future budget processes.</p> <p>Indicative budget: Approx. \$2.8million.</p>	<p>Lead: Sustainability</p> <p>Partners: Traffic and Civil Engineering, Open Space, Urban Design, Department of Transport</p>

Planning requirements for private developments and precincts

2.8	<p>Transition towards zero-carbon buildings and precincts through the planning process:</p> <ul style="list-style-type: none"> • Develop a zero carbon developments framework and work with developers to achieve leading practice • Introduce zero carbon standards for new commercial and residential developments, through pursuing a planning scheme amendment with local and state government partners • Encourage leadership in the local development industry by promoting leading practice buildings, such as developments that have met high sustainability standards (for example, case studies, tours and recognition) • Seek to waive fees for solar installations and improve guidance to help facilitate installs in heritage areas • Consider precinct-level opportunities when undertaking planning for activity centres, precincts, such as renewable energy generation, storage and local distribution. 	<p>Commence work on the zero carbon developments framework and guidance for solar in heritage areas within existing resources.</p> <p>Further work to progress a planning scheme amendment is subject to future budget processes.</p>	<p>Lead: Statutory Planning</p> <p>Support: Strategic Planning, Sustainability</p> <p>Partners: Local government alliances</p>
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2. Accelerate renewable energy, zero carbon buildings and efficient operations

No.	Action description	Resourcing	Who
Advocacy and partnerships			
2.9	<p>Advocate to other levels of government to improve energy performance of buildings with an ultimate aim of achieving zero carbon buildings, such as through:</p> <ul style="list-style-type: none"> • Increasing ESD requirements in all planning schemes across Victoria • Increasing energy performance standards in the National Construction Code • Mandating energy performance disclosure at point of sale and lease for residential and commercial buildings • Introducing minimum energy standards to be met at point of sale and lease • Significant investment of government funds and incentives like rebates, to assist homeowners to upgrade their homes (e.g. insulation, draft proofing etc.) • Advocating to the government and electricity distributors to reduce impediments to installing solar PV on multi-unit developments, such as distribution network constraints, on-site embedded networks and metering arrangements 	Within existing resources.	<p>Partners: Statutory Planning, Sustainability, Advocacy and Engagement, NAGA, CASBE, One Million Homes Alliance</p>
2.10	<p>Advocate to the state government for a rapid transition to 100% renewable grid-supplied electricity and improved energy data provision by:</p> <ul style="list-style-type: none"> • Increasing Victoria's Renewable Energy Target (VRET) to 100 per cent by 2030, and ensuring a fair and equitable transition for those in the community affected by energy insecurity • Improving access to and analysis of energy and emissions data by sector to inform policies and programs 	Within existing resources.	<p>Lead: Sustainability</p> <p>Support: Advocacy and Engagement</p> <p>Partners: NAGA, Other councils</p>



STRATEGIC PRIORITY 3. CREATE A CLIMATE ADAPTED CITY

Vision: Yarra's natural and built environments are healthy and resilient in a climate impacted world.

As the climate changes, our city's infrastructure and assets (both natural and built forms), will be placed under increasing pressure due to rising urban heat, storm and flood risks and water insecurity. Continued global heating means that the average number of days in Melbourne over 35°C will likely increase from around 8.3 days per year to between 13 and 21 days by the 2050's. The impact of continued global heating on water supply shows that by 2040 the Yarra catchment area will see rainfall reduce by 2.7% annually and an expected 11% reduction in water flowing to waterways.²¹

While these impacts pose significant challenges, they also present an opportunity to create a more climate resilient city that improves liveability. Our city's green spaces, parks and reserves provide considerable physical and mental health benefits that need to be preserved to help people cope with the impacts of a changing climate. To address these challenges, we need to adapt the way we design, build and manage our infrastructure and assets – our parks and reserves, buildings, roads, streetscapes and drainage network. We will implement a range of on-ground solutions and embed climate adaptation approaches across Council's works, strategies and policies.

As part of our climate emergency response, we will further use blue/green infrastructure solutions to help mitigate flood, drought, heat, and enhance habitat and green spaces. This includes additional tree planting, water sensitive urban design, such as permeable surfaces and investing in water harvesting, treatment and irrigation for parks and gardens to reduce pressure on drinking quality water supplies. We will create additional green and open spaces where possible, and provide spaces for growing food locally to foster more resilient food systems and reduce the emissions associated with growing and transporting food.

To inform the adaptive management of our water assets, we are currently conducting city-wide flood modelling, including climate sensitivity analysis. For Council's buildings, we will regularly review and raise the ESD standards and design-in climate resilience to deliver shade and use heat reflective, light-coloured surfaces, as appropriate. We are developing a draft Integrated Water Management Plan (IWMP) that addresses the whole water cycle and water uses across Council's operations, setting targets and actions needed to adapt to climate impacts.

Around 17% of Council's public land reserves are bushland. In order to protect and enhance our parks, reserves and ecological assets, we need to adapt our land and vegetation management practices. Aboriginal peoples have been living in connection with country for thousands of years, observing, experiencing, and successfully adapting to significant changes in the landscape. This traditional knowledge, handed down through generations, provides a valuable base for adaptive land management in a changing climate.²² Partnering with Traditional Owners, we also need to ensure that areas of cultural significance are protected and resilient to climate impacts and ensure future generations can enjoy and pay respect to these important places.

WE WILL CREATE ADDITIONAL GREEN
AND OPEN SPACES WHERE POSSIBLE

Yarra's pocket parks

Since 2009 we've created six new pocket parks by reclaiming road space and transforming underused paved areas into green spaces in Collingwood, Abbotsford and Richmond.

Due to their industrial past, parts of Yarra have a very low proportion of open space relative to the growing worker and resident populations through new commercial and residential developments.

These award-winning green spaces not only provide much-needed recreation and socialising opportunities, but help mitigate urban heat, reduce stormwater run-off and often improve facilities for cyclists and pedestrians.

The pocket parks typically include grassed areas, seating, garden beds, trees, feature lighting, bicycle racks and drinking fountains.



Edinburgh Gardens stormwater harvesting

The large raingarden in Edinburgh Gardens treats stormwater runoff from nearby drains, capturing about 4ML per year for irrigation of the park. The 700m² terraced garden also adds character to the existing landscape of this popular park.

Further expansions to this scheme, including increased storage capacity are currently under development. The implementation of this project is expected to reduce downstream flooding in the Fitzroy area and further reduce reliance on drinking quality water for irrigation.



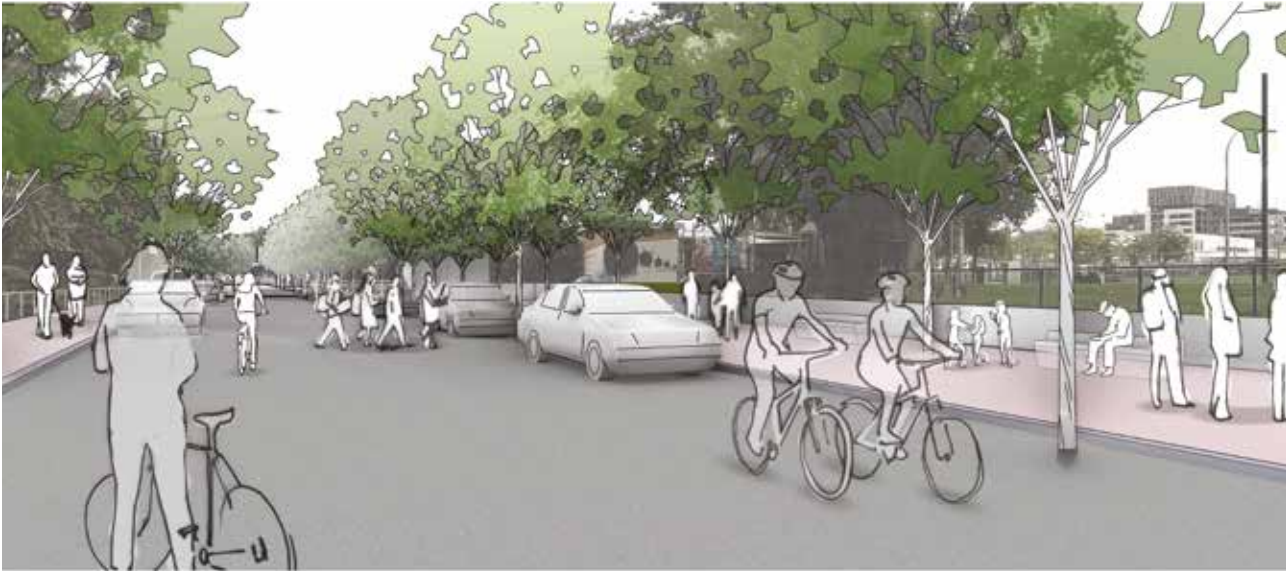
Targets

- By 2040, increase canopy cover for the whole municipality by 25% from a 17% baseline in 2014
- By 2024, 15% of total water consumption by Council to come from alternative sources (e.g. harvested rainwater and stormwater)
- Through an Integrated Water Management Plan set targets for improved water quality

Headline actions

- Accelerate street tree planting guided by Priority Planting Plans
- Expand stormwater harvesting at Edinburgh Gardens to reduce reliance on drinking quality water for irrigation and improve water quality
- Create additional pocket parks in high density areas through reclaiming road space
- Develop options to implement trials or permanent works to enhance streetscapes through increasing tree plantings and permeable surfaces to mitigate heat, wind exposure and flood risk.

Figure 9. Artist's impression of a draft design idea for a climate adapted street (Emergent Studios 2020)



3. Create a climate-adapted city

No.	Action description	Resourcing	Who
Street and park trees			
3.1	<p>Enhance our urban forest to increase tree canopy cover, diversity and climate resilience by:</p> <ul style="list-style-type: none"> • Accelerating street tree planting guided by Priority Planting Plans, informed by areas most affected by urban heat and social vulnerability • Adapting tree selection and establishment practices to optimise tree health, lifespan and function in a changing climate • Strategically installing passive irrigation for new tree plantings where feasible, and increasing permeable surfaces around existing trees to improve soil moisture • Partnering with other councils and government agencies to improve vegetation connectivity across borders 	Subject to annual budget processes.	<p>Lead: Urban Design, Open Space Services, Open Space Planning and Design, Drainage and Stormwater</p> <p>Support: Sustainability</p> <p>Partners: Resilient Melbourne and other networks</p>

Land use planning, local precincts and streetscapes

3.2	<p>Plan and design streetscapes, open spaces and precincts considering increasing climate vulnerability, such as urban heat, flood risk and vulnerable communities:</p> <ul style="list-style-type: none"> • During streetscape capital works processes, maximise opportunities for increased permeability and vegetation cover, sustainable infrastructure and enhanced walking and cycling. A current example is to develop options to implement trials or permanent works to enhance streetscapes along Gleadell Street and Griffith Street Richmond, increasing tree plantings and permeable surfaces to mitigate urban heat, wind exposure and flood risk. Options include to reclaim road space and reallocate car spaces to prioritise pedestrians and bicycle users, introduce traffic control measures, enhance the use of space and maintain access to existing uses • Identify climate resilience opportunities when undertaking planning for activity centres, precincts and other strategic land use planning processes • Create more green and open spaces, via a number of mechanisms, including land acquisition and reclaiming road space • Expand spaces for growing food locally, including new community gardens 	Subject to annual budget processes.	<p>Partners: Urban Design, Traffic, Asset Management, Sustainability, Strategic Planning, Urban Agriculture Open Space Planning and Design</p>
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3. Create a climate-adapted city

No.	Action description	Resourcing	Who
Land use planning, local precincts and streetscapes			
3.3	<p>Work through state and local planning mechanisms to facilitate a more climate resilient city, including:</p> <ul style="list-style-type: none"> • Use updated flood modelling that includes future climate scenarios to inform future flood overlays • Working with the state government to periodically update the planning scheme to ensure climate-related impacts are addressed in line with evolving best practice 	Subject to annual budget processes.	<p>Lead: Strategic Planning</p> <p>Support: Asset Management, Drainage and Stormwater</p> <p>Partners: State government</p>
Parks and reserves			
3.4	<p>Ensure climate resilient and ecologically healthy parks, reserves and green spaces by:</p> <ul style="list-style-type: none"> • Adapting management practices and managing for diversity to ensure our landscapes, parks and reserves are resilient in the face of a changing climate • Partnering with other landholders and government agencies to enhance habitat, canopy cover, carbon drawdown potential, and connectivity between ecological communities • Engaging with and drawing from Indigenous cultures and traditional knowledge to assist in managing land as our climate continues to change 	Proposed resources in Yarra's Draft Nature Strategy.	<p>Partners: Open Space Services, Open Space Planning and Design, Biodiversity, Urban Design, Urban Agriculture</p>

3. Create a climate-adapted city

No.	Action description	Resourcing	Who
Integrated and water sensitive solutions			
3.5	<p>Develop an Integrated Water Management Plan to enhance Yarra as a water smart city, improving liveability, social and economic outcomes of the community.</p> <p>Utilise integrated and water sensitive solutions to intercept run-off, increase soil moisture, manage flood risk throughout the city and enhance green spaces and waterway health by:</p> <ul style="list-style-type: none"> Investing in further stormwater harvesting infrastructure at Edinburgh Gardens to increase capacity to capture 24 ML annually and meet most of the garden's irrigation demand Investigating the feasibility of stormwater harvesting facilities at a further three locations to reduce reliance on drinking quality water for irrigation, and implement one stormwater harvesting project per year Consider the potential for blue/green infrastructure in future capital projects to achieve multiple water outcomes and support urban cooling Conducting city-wide flood modelling, including climate sensitivity analysis, to adaptively manage our water assets and inform future planning overlays 	<p>Edinburgh Gardens project funded in 2020/21 and additional capital works are subject to future capital budget processes.</p> <p>Additional staff resource required to progress future projects.</p>	<p>Lead: Drainage and Stormwater</p> <p>Support: Building and Asset Management, Traffic, Strategic Transport, Open Space Planning and Design</p> <p>Partners: Melbourne Water</p>

Council assets and infrastructure

3.6	<p>Improve the climate resilience of Council's assets, such as buildings, roads and drainage through:</p> <ul style="list-style-type: none"> Enhancing road design and construction for climate outcomes, including identifying opportunities for lower embodied energy and recycled content Investigating and trialling smarter and integrated asset management technologies Updating Council's ESD Buildings Policy to ensure our buildings are adapted to future climate impacts (for example, withstand increased rainfall, back-up power for critical buildings) Partnering with neighbouring councils and regional alliances to improve cross-border issues, such as flooding and tree corridors 	<p>New capital projects subject to annual budget processes.</p> <p>Council's ESD Buildings policy will be updated in year 1 within existing resources.</p>	<p>Lead: City Works, Building and Assets Management, City Lab, Traffic, Sustainability</p>
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3. Create a climate-adapted city

No.	Action description	Resourcing	Who
Organisational climate responses			
3.7	<p>Embed climate resilience into Council's strategies, policies and decision-making processes:</p> <ul style="list-style-type: none">• Ensure new and updated policies, plans and strategies consider climate-related risks and plan for climate resilience• Plan for intensifying climate impacts when reviewing key plans for heatwaves, extreme weather and emergency responses• Continue to engage management and staff around the climate emergency and support staff to deliver climate responses as part of their roles• Incorporate climate adaptation considerations into future Asset Management Plans and associated Project Implementation Plans for Council assets• Continuing to ensure all new design works are assessed using climate adaptation considerations through our Green Infrastructure Guidelines, Climate Adaptation Guidance Tool and Quadruple Bottom-Line Tool (QBL)• Stay abreast of adaptation information and technologies and periodically review our approaches to climate adaptation	Within existing resources.	<p>Lead: Sustainability</p> <p>Support: Health Safety and Risk, Various units across Council</p>



STRATEGIC PRIORITY 4: TRANSITION TO ZERO EMISSIONS TRANSPORT

Vision: Sustainable transport is the most attractive, safe and convenient way to travel in and through Yarra.

Carbon emissions from transport make up 15% of the Yarra community's emissions, with the majority being a result of car travel. Despite an extensive network of sustainable transport options in Yarra, the number of car trips starting, ending and occurring within Yarra is increasing, and is forecast to reach 42,800 by 2031 – equivalent to a 48% increase from 2011.

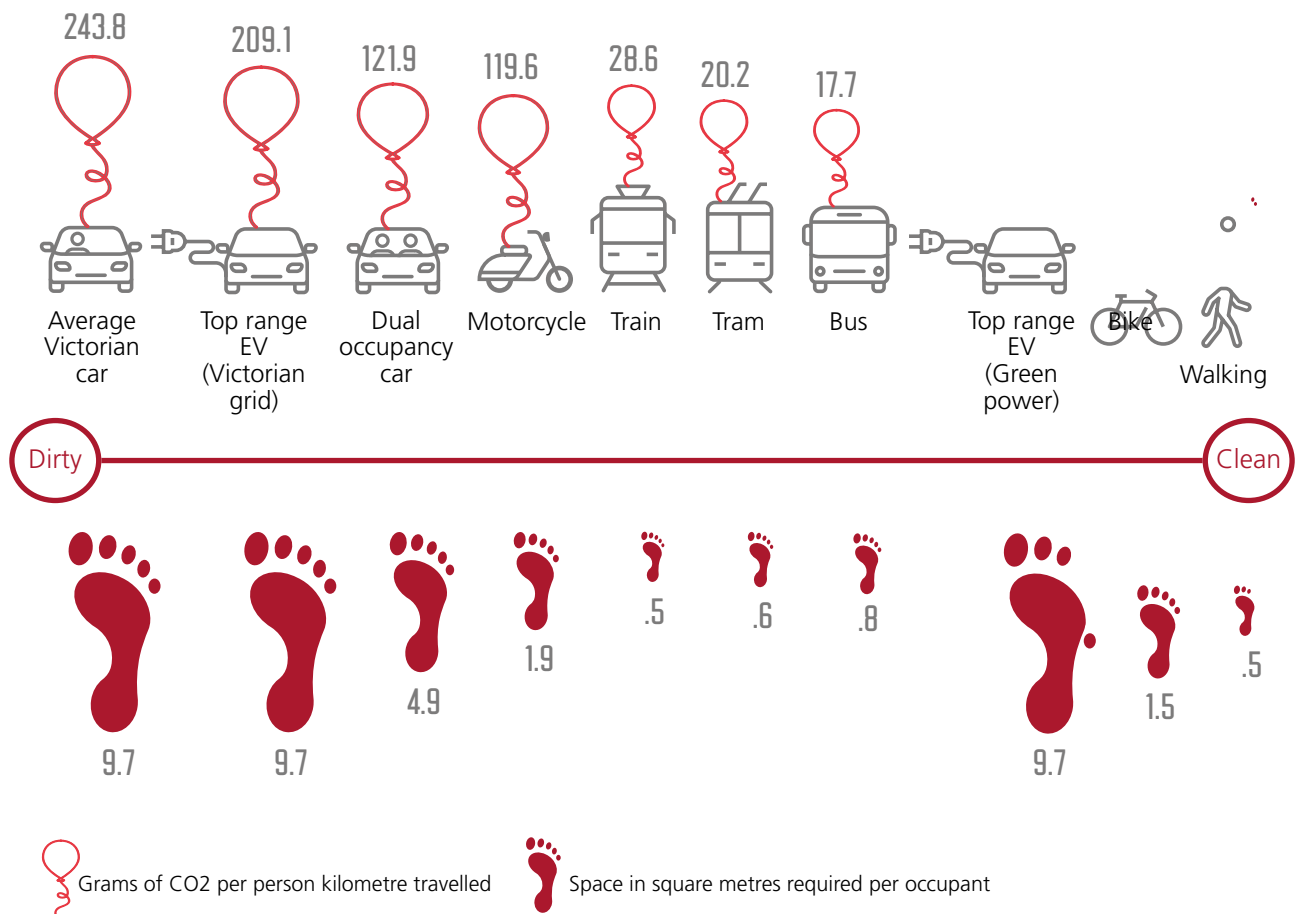
Reducing Yarra's transport emissions largely depends upon reducing non-essential car use, increasing the portion of trips taken by public transport, walking and cycling, and rapidly transitioning to electric (or other zero emissions) vehicles.

There is considerable opportunity to reduce transport emissions and realise a range of co-benefits including reduced congestion, improved air quality, health, amenity and overall liveability of the city. Noting the exception for electric vehicles, Figure 10. shows the strong correlation between carbon emissions intensity and land space taken up by the various modes of transport.

As the COVID-19 related restrictions ease and people return to work and school, there's a pressing need for more cycling lanes to encourage people to keep up the cycling habits they're taken up during the restrictions; to reduce pressure on public transport; and provide an attractive alternative to driving. This is a unique opportunity to rapidly roll out 'pop-up' cycling lanes to give

commuters a safe, healthy way to get to work. Any temporary changes would be evaluated and would inform potential permanent upgrades in future. This is one of the key ways both council and state governments can 'build back better' to recover from the pandemic and reduce carbon emissions.

Figure 10. Carbon emissions (gramsCO₂e per person kilometre) and space taken up by various transport modes²³



Source: Institute for Sensible Transport

Yarra's transport snapshot

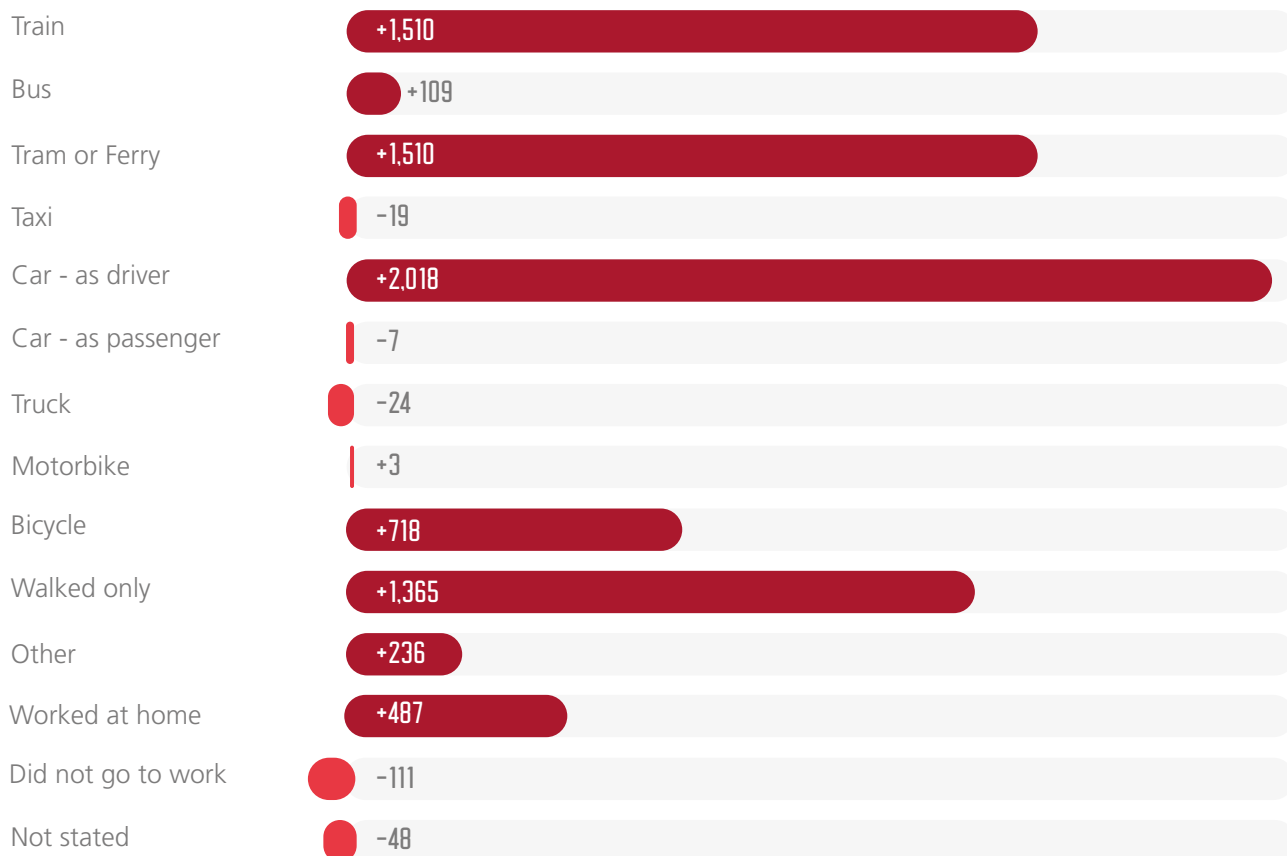
Largely due to Yarra's growing population, there were 7,747 additional residents travelling to work in 2016 (the most recent ABS Census data) compared to 2011. This included approximately 2,000 more people driving to work in the five-year period, and a further 3,000 people taking public transport (both tram and train modes). More modest increases in walking and cycling were also experienced over the same period. (Figure 11). Additionally, a significant portion of vehicle traffic in Yarra is commuter traffic passing through from other parts of Melbourne.

The portion of trips to work made by bike in Yarra has seen a modest increase over time — from 6.4% in 2006 to 8.5% in 2011, and 8.6% in

2016²⁴ — however this is likely to plateau unless measures are taken to significantly improve the quality of Yarra's cycling infrastructure. While Yarra has an established cycling culture and cycling levels are high in Yarra compared to most Melbourne municipalities, leading cycling cities in Europe with a comparable density and urban form to Yarra have a bike mode share of over 25% — around three times higher than Yarra.

The recent period of COVID-19 restrictions has seen an increased interest in cycling, with an Australia-wide survey reporting that 73% of people said that during the pandemic they will ride their bike more or as much as they normally would.²⁵ This period presents opportunities to create lasting changes to increase cycling rates in Yarra and beyond.

Figure 11. Change in method of travel to work by employed people, trips originating in Yarra - 2011 to 2016²⁶



Opportunities for transport improvements

In order to reduce car use, a range of interventions are needed, including additional investment in sustainable transport infrastructure, public transport improvements, bicycle and pedestrian infrastructure, car sharing and other initiatives to discourage non-essential car ownership and use.

Transitioning to a zero emissions future requires urgent improvements across metropolitan Melbourne's transport network. Council has key commitments in the Council Plan to advocate for public transport improvements and deliver improved active transport. In line with these commitments, we are advocating to and working with the state government to deliver public transport improvements, including more accessible tram stops along tram routes, advocating for a new north-south bus route, facilitating new electric bus routes, rail improvements and for the state government to power public transport with 100% renewable energy.

Council will progressively improve environments for pedestrians so that more journeys can be safely and enjoyably made on foot. These include improved pedestrian crossings, footpath widening, signage and pedestrian facilities, such as adequate lighting and seating. There may also be opportunities to further slow traffic speeds in additional areas and reduce traffic volumes.

There is significant opportunity to increase the portion of trips taken by push bike and electric bike by improving Yarra's cycling network to encourage cycling by people who may be interested in riding but currently do not feel safe. Electric bikes can reduce some common barriers to conventional bikes, including physical limitations of the rider, arriving at work without perspiring and the ability to ride with greater loads (for example, children or groceries), and have the potential to replace some car use.²⁷

Council will continue to collaborate with other governments to deliver an integrated, accessible and convenient transport system for Melbourne, in which sustainable transport is prioritised as the most attractive transport option for the community.

Integrated transport planning

To deliver sustainable transport priorities that respond to the climate emergency, Council will implement actions through an Integrated Transport Plan (ITP). The ITP will set out our strategic objectives for transport and how future projects could be delivered. We will also develop a new Parking Management Plan in conjunction with the ITP, to ensure the strategic directions of both plans deliver on climate emergency objectives and transport priorities for Yarra.

The Integrated Transport Plan will:

-
- Set ambitious targets to increase the share of trips by sustainable transport modes
 - Provide a comprehensive evidence-base to support transport action in Yarra
 - Identify existing and emerging issues and opportunities, including incentives or initiatives to change travel behaviours
 - Update and improve Council's existing transport policy objectives and vision statements
 - Identify a comprehensive list of integrated actions that align with transport objectives
- Use parking provisions, or other mechanisms, to encourage car-share and electric vehicles
 - Promote efficient use of road space for walking and cycling, public transport, shared transport and zero emissions vehicles
 - Highlight new approaches to delivering transport projects, such as pilots and trials, to enable more innovative and time and cost-effective ways of implementing projects
 - Inform an update to Yarra's Bicycle Strategy and a Parking Management Plan
- Set out a clear advocacy agenda to facilitate the delivery of state government projects in Yarra
 - Provide Councillors with a strategic community-endorsed mandate to make the project decisions required
 - Provide an effective monitoring framework for informed on-going decision making

Electric vehicles and fleet

While public and active transport modes are preferred ahead of vehicular transport, electric vehicles present considerable opportunity to reduce transport emissions. Electric vehicles have lower emissions over their lifecycle than fossil fuel vehicles, however there are still carbon emissions and environmental impacts from manufacture through end-of-life disposal. As such, a range of vehicles should be considered, with a preference for smaller, lighter weight, more efficient vehicles, such as electric bicycles, scooters and motorbikes, followed by cars.

Establishing Yarra as a leading zero emissions vehicle municipality will provide other local benefits including reduced noise and air pollution. Work to achieve this will include provision of some Council-owned public-use charge points at key locations, and developing a strategic and shared plan for a diverse charge point network in Yarra. We will also advocate to other levels of government for mechanisms to support a fast transition to electric vehicles.

We will transition our fleet to all electric vehicles as soon as practical and assist others by sharing our experience. We currently operate a number of electric vehicles powered by 100% renewable electricity, as part of our operational fleet, including electric bikes and electric tipper trucks. We will also work actively with our contractors to transition their vehicles to low emissions and electric vehicles.

Copenhagen-style segregated bike lanes

Yarra's first protected bike lanes along Wellington Street, Collingwood separate cyclists from road traffic, providing a safer and better connected journey. The bike lanes run on both sides of Wellington Street, from Victoria Parade to Johnston Street.

In addition to the improvements for cyclists, the street upgrades included tree planting, new garden beds, an improved pedestrian crossing, more bike parking, and traffic-calming measures to make the road safer and more user-friendly. Distinct honeycomb road markings are in place at potential conflict points and traffic lights have been sequenced to smooth the passage for cyclists at peak times.

With around 1,000 people taking that route during the weekday morning peak, this is an important investment for cyclists and is encouraging more people to take up two wheels. Shortly after completing the works, we observed a 20 percent increase in cycling during the morning peak. Approximately one third of those riders are female, which is higher than the Victorian and national average, and a strong indication that the road is now safer.

With the significant increase in cyclists, who are smaller and more vulnerable than cars, there is an opportunity to further improve cycling safety and attractiveness, through upgrading street lighting to better achieve cyclist safety.

The works were delivered in partnership with VicRoads and the Transport Accident Commission.

The works were delivered in partnership with VicRoads and the Transport Accident Commission. Council will work with partners to deliver further separated bike lane projects, applying an iterative trial approach.





Targets

- Through developing an Integrated Transport Plan, set ambitious targets to increase the share of trips by active and public transport and decrease the share by car
- By 2025, all Council's vehicles to be powered by 100% renewable electricity / zero emissions, where practical options are available

Headline actions

- Support the installation of public-use electric vehicle charge points
- Replace all Council's diesel and petrol powered vehicles with electric / zero emissions vehicles, as practical options become available
- Use an 'iterative trial' approach to roll out transport projects quickly to inform permanent upgrades

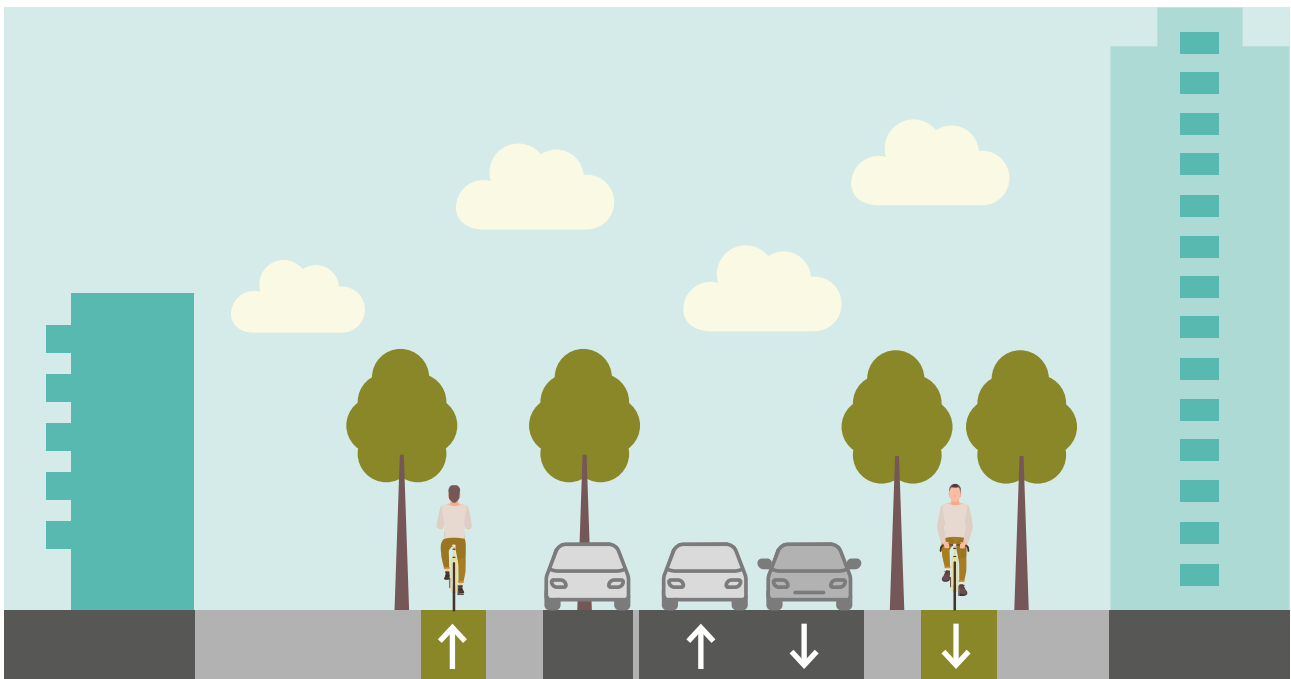
Protected bike lane trial in Elizabeth Street, Richmond

Elizabeth Street, Richmond is a key east-west cycle route through the city, carrying around 1,000 cyclists per day. Although this is an important cycling corridor, it has narrow bike lanes that place cyclists between parked car doors and large volumes of moving traffic — an environment that typically discourages additional cyclists.

Using an iterative trial approach, Council is temporarily putting in place cycling infrastructure to create protected bike lanes. Such an approach enables trial designs to be rolled out quickly and tested in real world environments before progressing more permanent and costly upgrades.

The Elizabeth Street project involves monitoring and evaluation to inform potential upgrades including reallocation of road space for permanent bike lanes and additional tree plantings.

Figure 12. Elizabeth Street, Richmond proposed trial of segregated bike lanes



4. Transition to zero emissions transport

No.	Action description	Resourcing	Who
Public, active transport and parking			
4.1	<p>Develop an Integrated Transport Plan (ITP) to facilitate the uptake of sustainable modes of transport and the long-term reduction of private car use by:</p> <ul style="list-style-type: none">• Reallocating road and parking space for upgrades, enabling footpath widening, bike lanes, public transport improvements and greening opportunities• Prioritising walking, cycling and public transport through improved infrastructure based on evidence and future predicted transport modelling• Promoting and facilitating car-sharing and other alternatives to private car ownership• Investigating parking restrictions to facilitate improved access for sustainable modes of transport through changes to allocation of road space	Budget required for comprehensive strategy development.	<p>Lead: Strategic Transport</p> <p>Support: Parking Management, Traffic</p> <p>Partners: Various — to be confirmed through the ITP</p>

4. Transition to zero emissions transport

No.	Action description	Resourcing	Who
Public, active transport and parking			
4.2	<p>Increase sustainable transport solutions throughout the city including:</p> <ul style="list-style-type: none"> • Using iterative trials for temporary sustainable transport infrastructure, car free zones and curfews and reallocation of car space for sustainable transport modes • Rapidly rolling out temporary cycling lanes as part of the recovery from COVID-19* • A near-term project is introducing protected bike lanes along Elizabeth Street Richmond, a key east-west cycle route through the city. The project would involve reallocation of road space, additional canopy tree plantings and monitoring to learn from and inform future street upgrade projects. • Delivering additional safe cycling infrastructure projects and on-going maintenance improvements • Increasing active transport infrastructure, traffic calming and filtering solutions via local 'access and movement' projects and capital works process, including additional 30km per hour zones • Raising the sustainable transport standards (i.e. Green Travel Plan requirements) for new residential and commercial developments, working with council and state government partners • Working towards developing a high-profile street to deliver improvements that may include maximising opportunities for improved public transport access, cycling infrastructure and pedestrian areas, enhanced tree canopy and vegetation, permeable surfaces, green spaces and reclaiming road space. 	To be considered during planning and programming specific capital works.	<p>Lead: Strategic Transport</p> <p>Support: Traffic</p> <p>Partners: VicRoads, Public Transport Victoria, Council alliances</p>

*Due to COVID-19 related changes to community transport needs, Council will implement short term measures to provide additional bike lanes and improve cycling safety through creating increased spaces for cyclists in roadways; and then evaluate if they are effective, with a view to making them more permanent.

4. Transition to zero emissions transport

No.	Action description	Resourcing	Who
Public, active transport and parking			
4.3	<p>Develop a Parking Management Plan that is informed by the Integrated Transport Plan that would seek to:</p> <ul style="list-style-type: none"> • Apply user-pays principles and remove incentives that preference car use and ownership • Apply a road-use hierarchy to favour active and public transport modes • Develop a model for Council’s parking revenue that’s financially and environmentally sustainable • Reduce on-street parking, where necessary, to enable improvements to sustainable transport infrastructure and the public realm • Consider appropriate approaches to restrain the provision of off-street parking • Introduce a parking overlay in the Yarra Planning Scheme to reduce the on-site car parking requirements for new developments, due to the availability of public and sustainable transport options 	To be resourced by additional resources required for the Integrated Transport Plan.	<p>Partners: Strategic Transport, Compliance and Parking, Statutory Planning, Strategic Planning</p>
4.4	<p>Support the rapid transition to zero emissions vehicles, including facilitation and advocacy to increase electric vehicle charging points across private and public spaces within the municipality by:</p> <ul style="list-style-type: none"> • Working with potential sites and providers to support the roll out of public-use electric vehicle charge points • Incorporating in the planning permit process, requirements for significant new developments to make appropriate provision for electric vehicle charging infrastructure • Collaborating with car-sharing businesses to accelerate the transition to electric vehicles • Supporting, educating and promoting the transition to electric vehicles by Yarra residents and businesses. 	To be resourced by additional resources required for the Integrated Transport Plan.	<p>Lead: Strategic Transport</p> <p>Support: Sustainability, Economic Development, Statutory Planning</p> <p>Partners: Local businesses</p>

4. Transition to zero emissions transport

No.	Action description	Resourcing	Who
Electric and low emissions vehicles			
4.5	<p>Support the transition of Yarra Council's fleet to zero emission vehicles and low emissions vehicles including:</p> <ul style="list-style-type: none">• Converting Council's entire fleet to zero emissions by 2025, subject to availability of suitable vehicles and charging infrastructure/capability• Converting Council's diesel fleet (i.e. tipper trucks) to electric as soon as possible• Converting Council bus fleet to electric by 2023• Ceasing purchase of new diesel-powered utes until practical electric vehicles enter the market• Progressively switching to electric or other zero emissions vehicles at the time of renewal where possible, utilising full lifecycle cost budgeting rather than purchase price• Utilise hybrid options, such as the efficient Yaris hybrid, as a transitional technology where zero emissions vehicles and charging infrastructure are not practical. Phase out non-hybrid petrol driven passenger vehicles by 2022• Reducing vehicles and their usage through a range of organisational and technical solutions including active transport, online meetings and remote monitoring. Use of telematics will allow Council to better understand the opportunities.• Ensuring Council's service delivery contractors transition to zero emissions vehicles as quickly as possible (aim for 2026), including street sweeping and kerbside waste collection vehicles• Participating in sector-leading pilots and trials for new vehicles or zero emissions fuel opportunities, such as using onsite solar and battery storage to power council and contractor electric vehicles• Being a community leader in staff travel planning and travel behaviour change	Subject to annual budget processes.	Lead: City Works Support: Procurement, Sustainability

4. Transition to zero emissions transport

No.	Action description	Resourcing	Who
Advocacy and partnerships			
4.6	<p>Advocate to and partner with state and federal governments for improved active and public transport infrastructure including:</p> <ul style="list-style-type: none"> • Prioritising public transport infrastructure spending over road infrastructure spending and increased funds for active transport projects • Providing more frequent, increased capacity, and better-connected modes of public transport • Powering all trains with renewable electricity • Zero emissions public transport buses, with trials focused on routes through Yarra • Improving separated bike infrastructure with good interconnectivity across intersecting municipal areas <p>Seek to enhance effectiveness of advocacy through partnerships and collaboration with other local governments and key partners.</p>	Within existing resources.	<p>Lead: Strategic Transport, Advocacy and Engagement</p> <p>Support: Sustainability</p> <p>Partners: NAGA, Other local governments</p>
4.7	<p>Advocate to state and federal governments to accelerate the uptake of electric vehicles including:</p> <ul style="list-style-type: none"> • Developing a coordinated national electric vehicle strategy and support mechanisms • Implementing best-practice national vehicle emissions standards • Funding and planning for public charge points • Providing financial incentives for businesses and private owners to purchase electric vehicles <p>Seek to enhance effectiveness of advocacy through partnerships and collaboration with other local governments and key partners.</p>	Within existing resources.	<p>Lead: Advocacy and Engagement</p> <p>Support: Strategic Transport, Sustainability</p> <p>Partners: NAGA, other local governments</p>



STRATEGIC PRIORITY 5. MOVE TOWARDS ZERO WASTE AND CONSCIOUS CONSUMPTION

Vision: The Yarra community are conscious consumers who avoid waste, reduce embodied carbon emissions and preserve resources.

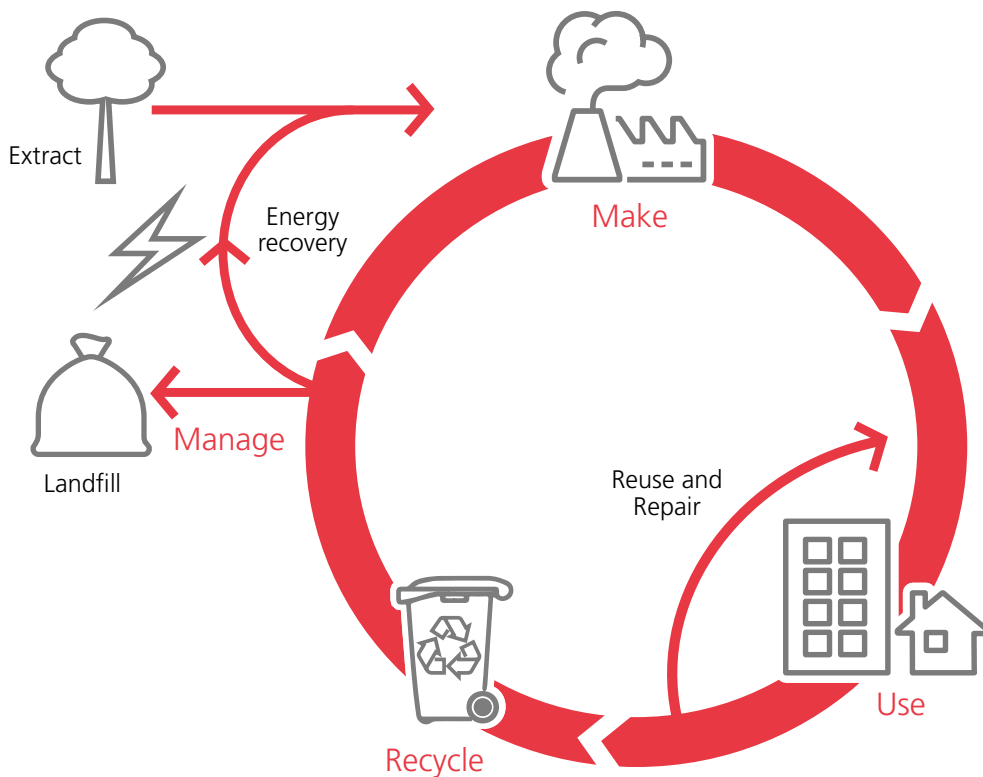
What and how people consume has a profound impact on our planet. In an affluent country like Australia we are over consuming; depleting the Earth's natural resources, generating harmful carbon emissions and creating unnecessary waste. Many products and services have significant embodied emissions — carbon emissions generated from production through to their end-of-life, such as raw material extraction, manufacturing, use and transport. If everyone in the world consumed as many resources and as much fossil fuel-based energy as the average Victorian today, three to four planets would be needed to sustain us.

To accelerate reductions in carbon emissions and curb the overuse of resources, we need to consume resources more consciously, with an understanding of the environmental and social implications of our choices. Emissions associated with using goods and services – such as buying food, plastic items and packaging, electronics and clothing — occur right across the supply chain. For example, there are considerable emissions at each stage of growing crops, processing, distributing, storing, cooking and disposal of food waste. By some estimates direct emissions from food growing represents between 25-30% of its emissions²⁸, with the rest occurring along the food supply chain through to disposal. Other goods, such as electronics and fashion, generate significant carbon emissions and waste through intentionally designing for obsolescence and disposability.

Reducing consumption and waste will require a shift in mindsets to move away from a traditional ‘take-make-dispose’ model to one that values any ‘waste’ as a resource and aspires to a zero waste system. Through approaches such as applying circular economy principles, waste can be designed out of a system, and finite resources valued and kept circulating within it (Figure 13).

Driving this requires systemic changes across government policies, regulatory settings, behavioural patterns and investment to drive new industries, infrastructure and processing facilities.

Figure 13. Resource flows in a circular economy²⁹



Community education and engagement are critical in accelerating this transition. Yarra Council has long had a role in delivering waste behaviour change programs, services and infrastructure.

We actively support the community to avoid waste and take up alternative models, such as sharing, repairing, reusing; and enable greater recycling.

Council also continues to evolve its services and infrastructure, such as kerbside collections and recycling systems and infrastructure, to apply new approaches and meet community needs.

Yarra Council will continue to partner with other councils and state government to create viable local recycling solutions and markets, based on circular economy principles. Through our alliances, we'll also continue to advocate to state and federal government for systemic improvements in consumer products, waste and recycling industries.

Targets

Contribute towards the state government's targets to:

- Divert 80% of waste from landfill by 2030, with an interim target of 72% reduction by 2025
- Halve the volume of organic material going to landfill between 2020 and 2030, with an interim target of 20% reduction by 2025

Headline actions

- Roll out a municipal-wide, four-bin food and organic waste kerbside collection service in 2020
- Facilitate the development of local recycling solutions and markets for recyclables, working with industry and council partners
- Phase out single use plastics across Council's operations and further engage the community to reduce plastics

Yarra's Waste Revolution

In 2020/21, Council will be rolling out a four-bin kerbside recycling service based on a successful trial with 1300 households in Abbotsford. The new service will enable residents across Yarra to separate food and glass waste for recycling, in addition to the usual commingled recyclable and landfill waste streams.

As part of Yarra's Waste Revolution, residents' food and garden waste is sent to a commercial composter and turned into nutrient rich mulch and fertiliser, avoiding highly polluting methane when food waste is disposed to landfill. Removing glass from the other recyclables enables higher quality glass to be turned into new glass products, and low-quality glass to be used in local road construction. Separating glass also produces better quality paper, cardboard and plastic material for recycling.

The trial has seen a dramatic reduction in waste disposal — diverting about 60% of household waste from landfill. When we surveyed over 400 residents in the trial area, almost 80% told us they think these changes are an improvement in managing waste and just under 90% support separating their waste for collection.



5. Move towards zero waste and conscious consumption

No.	Action description	Resourcing	Who
5.1	<p>Continue to deliver communications campaigns and behaviour change programs with a focus on waste avoidance and sustainable consumption:</p> <ul style="list-style-type: none"> Examples include: Proudly Plastic Free, This is Your Waste, Zero Waste Map, Food Know How, Grow Your Own 	Current programs within existing resources. New programs subject to annual budget processes.	<p>Lead: Waste Minimisation</p> <p>Support: Communications, Sustainability</p> <p>Partners: Local environment groups and other community organisations</p>
5.2	Roll out Yarra's Waste Revolution across the municipality: a new four-bin glass, food and organic waste kerbside collection service, along with recycling education	Additional resources subject to annual budget processes.	<p>Lead: Waste Minimisation</p> <p>Support: Service Contracts</p>
5.3	<p>Facilitate the development of local recycling processing solutions</p> <ul style="list-style-type: none"> Carry out feasibility work with other councils and state government to explore opportunities for Council-run glass processing facilities 	Subject to annual budget processes.	<p>Lead: City Works</p> <p>Support: Sustainability</p> <p>Partners: State government agencies</p>
5.4	<p>Apply circular economy and lifecycle approaches in Council business</p> <ul style="list-style-type: none"> Embed approaches into procurement and management of Council's assets, goods and services (for example, design-out resource use, minimise inputs, maximise resource recovery, reduce residual waste and carbon emissions and buy recycled products). 	Resourcing needs to be determined.	<p>Lead: Sustainability, City Works</p> <p>Support: Waste Minimisation, other teams across Council</p>

5. Move towards zero waste and conscious consumption

No.	Action description	Resourcing	Who
Advocacy and partnerships			
5.5	<p>Advocate to state and federal government on waste and recycling issues — advocacy to include:</p> <ul style="list-style-type: none">• Placing a future ban on food waste to landfill• Supporting recycling industry innovation and market development• Improving and expanding domestic recycling and composting systems and facilities• Imposing stricter sustainable packaging standards• Expanding product stewardship schemes	Within existing resources.	<p>Lead: City Works</p> <p>Support: Advocacy and Engagement, Waste Minimisation, Sustainability</p>

Appendix A: Council strategies and climate responses

Relevant Council strategy	Climate response in strategy	Strategic priority alignment
Council Plan and Health and Wellbeing Plan	Community resilience, health and wellbeing, social cohesion, food systems	All
Urban Agriculture Strategy	Sustainable, resilient food systems	Strategic Priority 1, 4 and 5
Urban Forest Strategy	Climate adaptation, tree resilience and diversity	Strategic Priority 3
Draft Nature Strategy	Ecological regeneration, biodiversity management	Strategic Priority 3
Draft Integrated Water Plan	Climate adaptation, water security, urban heat mitigation	Strategic Priority 3
Waste and Resource Recovery Strategy	Circular economy principles	Strategic Priority 5
Environmentally Sustainable Design (ESD) Buildings Policy	Sustainable built environment, zero carbon developments	Strategic Priority 2, 3
Yarra Open Space Strategy	Climate adapted open spaces, flood and heat mitigation	Strategic Priority 3
Municipal Strategic Statement	Climate considerations in land use planning	Strategic Priority 2, 3
Urban Design Strategy	Climate adapted landscapes, streetscapes and places, flood and heat mitigation	Strategic Priority 2, 3, 4
Economic Development Strategy	Low carbon economy, sustainable business leadership and sustainable economy	Strategic Priority 2, 3, 5
Bicycle Strategy	Active transport	Strategic Priority 4

GLOSSARY

Carbon offset

The action or process of compensating for carbon (or greenhouse gas) emissions arising from industrial or other human activity, by participating in schemes designed to make equivalent additional reductions in carbon emissions. Examples include tree planting to sequester carbon, methane capture and use and renewable energy projects.

Carbon neutral

Carbon neutral refers to the balance achieved when emissions created by human activity are offset by an equal amount. Carbon neutrality is often achieved through a combination of reducing carbon emissions and buying carbon offsets, which means investing in projects that reduce or absorb greenhouse gas emissions of equal value to the amount being produced. Carbon neutrality is sometimes referred to as having a net zero carbon footprint.

Climate crisis

See climate emergency.

Climate emergency

Climate emergency can be understood in two ways. Firstly, it refers to the catastrophic changes to the climate brought about by human activity that poses a dangerous threat to all life on the planet. Secondly, a climate emergency response can be considered taking effective action at a scale and speed commensurate with the magnitude of the crisis.

Drawdown

The removal of excess greenhouse gases from the atmosphere with the aim of restoring a safe climate.³⁰

Environmentally Sustainable Development (ESD)

Environmentally sustainable development is the integration of environmental considerations in urban planning, development and construction, with the aim of protecting the environment while meeting current and future community needs. The term also refers to building performance in relation to the use of environmentally sustainable design and orientation, low-impact materials, reuse and recycling of materials, energy efficiency, waste management and the use of closed loop systems.

Green/blue infrastructure

Green and blue infrastructure refers to landscape elements that are designed to deliver a range of environmental, economic, and social benefits including improved water quality, enhanced climate resilience and restoring the health of ecosystems. Examples include natural and artificial waterways and water courses, raingardens, vegetated swales, trees and indigenous plant landscapes.

Greenhouse gas (GHG) emissions

Carbon dioxide, methane, nitrous oxide and other gases that contribute to global heating. Also referred to as carbon emissions.

Integrated Water Management

Integrated Water Management (IWM) is a holistic approach to water management that considers the interactions of all elements of the water cycle including potable (drinking quality) water, rainwater, stormwater, recycled water and groundwater to ensure they support and enhance social, ecological and economic outcomes.

Safe climate

A climate that allows the natural environment, existing and future generations and communities to survive. The current climate conditions are not safe for a large range of species and increasingly unsafe for millions of people.

Urban heat island

An urban heat island is an urban area that is significantly warmer than its surrounding areas. This increased warmth is due to heat being retained by roads, buildings, footpaths made of concrete and asphalt, and waste heat created by cars, industry and people. The urban heat island effect can negatively impact the natural environment and human health.

Water sensitive urban design treatments (WSUD)

Water sensitive urban design (WSUD) attempts to mimic the natural water cycle as closely as possible, such as by slowing down, intercepting and reusing stormwater and improving the quality of water discharged to waterways. Examples of WSUD treatments include raingardens, rainwater tanks, swales, wetlands and sediment ponds.

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